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TRANSCRIPT OF RECORD

Supreme Court of the United States

OCTOBER TERM, 1941

No. 706

**CITY OF CHICAGO, A MUNICIPAL CORPORATION,
BOARD OF HEALTH OF THE CITY OF CHICAGO,
ET AL, PETITIONERS,**

vs.

FIELDCREST DAIRIES, INC.

**ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT
OF APPEALS FOR THE SEVENTH CIRCUIT**

PETITION FOR CERTIORARI FILED OCTOBER 20, 1941.

CERTIORARI GRANTED NOVEMBER 24, 1941.

IN THE
Supreme Court of the United States

OCTOBER TERM, A. D. 1941.

No.

CITY OF CHICAGO, (A MUNICIPAL CORPORATION), BOARD
OF HEALTH OF THE CITY OF CHICAGO, DR.
ROBERT A. BLACK, HEALTH COMMISSIONER AND ACT-
ING PRESIDENT OF BOARD OF HEALTH OF THE CITY OF
CHICAGO,

Petitioners,

vs.

FIELDCREST DAIRIES, (INC.),

Respondent.

ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT
OF APPEALS FOR THE SEVENTH CIRCUIT.

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TRANSCRIPT OF RECORD

IN THE
United States Circuit Court of Appeals
For the Seventh Circuit

No. 7502

FIELDCREST DAIRIES, (INC.),
Plaintiff-Appellee,

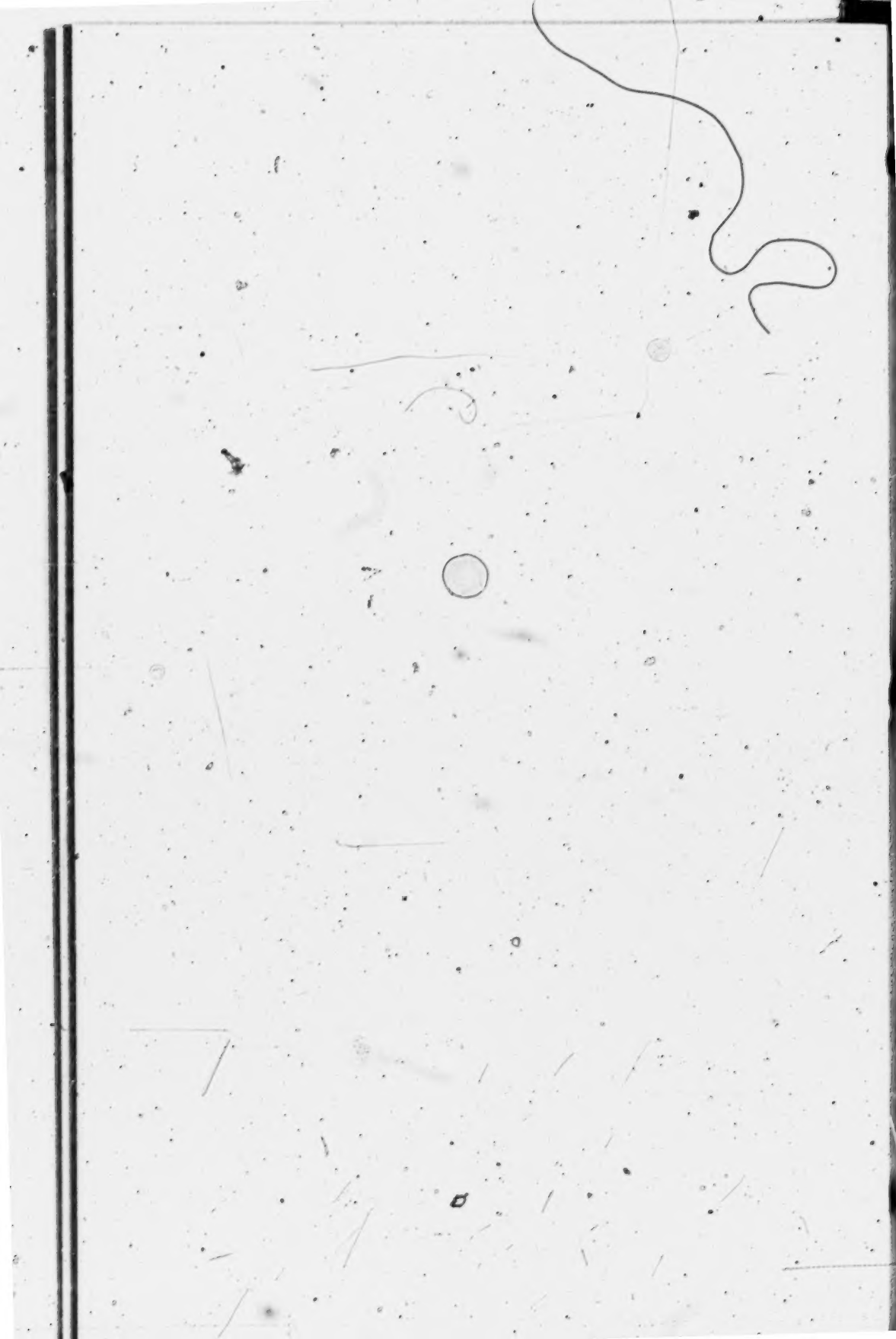
vs.

CITY OF CHICAGO, (A MUNICIPAL CORPORATION),
BOARD OF HEALTH OF THE CITY OF CHICAGO,
DR. ROBERT A. BLACK, HEALTH COMMISSIONER AND
ACTING PRESIDENT OF BOARD OF HEALTH OF THE CITY OF
CHICAGO,

Defendants-Appellants.

Appeal from the District Court of the United States for
the Northern District of Illinois, Eastern Division.

TRANSCRIPT OF RECORD FILED JAN. 20, 1941.
PRINTED RECORD.



IN THE
United States Circuit Court of Appeals
For the Seventh Circuit

No. 7502

FIELDCREST DAIRIES, (INC.),
Plaintiff-Appellee,

vs.

**CITY OF CHICAGO, (A MUNICIPAL CORPORATION),
BOARD OF HEALTH OF THE CITY OF CHICAGO,
DR. ROBERT A. BLACK, HEALTH COMMISSIONER AND
ACTING PRESIDENT OF BOARD OF HEALTH OF THE CITY OF
CHICAGO,**

Defendants-Appellants.

**Appeal from the District Court of the United States for
the Northern District of Illinois, Eastern Division.**

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ROBERT A. BLACK, called as a witness on behalf of the defendants, having been first duly sworn, testified as follows:

Direct Examination by Mr. Schaefer.

Q. Will you state your name, please, Doctor?

A. Robert A. Black.

Q. And where do you live, sir?

A. Del Prado Hotel.

Q. And your occupation is what?

A. Physician, pediatrician.

Q. When were you licensed to practice medicine in Illinois?

2007 A. In 1904.

Q. What educational institutions did you attend, Doctor?

A. Washington Academy, Iowa State Normal, Iowa University and Northwestern University.

Q. Are you affiliated with any medical societies?

A. Chicago Medical Society, Chicago Pediatric Society, Chicago Institute of Medicine, American College of Physicians, the American Academy of Pediatricians, the A. M. A.

Q. That is the American Medical Association?

A. Yes.

Q. At the present time, doctor, are you connected with any educational institution?

A. Loyola University.

Q. In what capacity?

A. Presumably the head of the department of Pediatrics, although I am still on leave, though still teaching.

Q. Are there any other educational institutions that you are now connected with, Doctor?

A. No other educational.

Q. What is the nature of your practice, Doctor?

A. Children, entirely.

Q. Are you connected with the Board of Health of the City of Chicago?

2008 A. Yes, sir.

Q. In what capacity are you connected with the Board of Health of the City of Chicago?

A. As a member.

Q. Have you served in any other capacity?

A. I was acting president from some time in the latter part of November until some time in the latter part of May.

Q. November of 1938 and May of 1939?

A. Yes.

Q. During the time you have been connected with the Board of Health of the City of Chicago have you had occasion to consider the matter of the use of paper containers for the distribution of fresh fluid milk in the city?

A. Yes, sir.

Q. When did that matter first come to your attention, Doctor, as nearly as you can remember?

A. Some time in the last part of December or the early part of January.

Q. Of what year?

A. Either December of 1938 or January of 1939, in the very last or the very beginning.

Q. In your opinion, Doctor, is milk an essential item in the diet of infants?

2009 A. Yes, sir.

Q. In your opinion is milk an essential item in the diet of children?

A. Yes, sir.

Q. Based on your experience as a member of the Board of Health and as a pediatrician, do you have any opinion as to the quantity of fresh fluid milk consumed by children under the age of twelve years in the city of Chicago?

A. I would not make an authoritative statement, but I think it would be around 50 per cent.

Q. From the point of view of the health of infants, Doctor, and as a pediatrician, what is your opinion as to the relative merit and demerit of milk containing no paraffin as contrasted with milk which contains undissolved paraffin in quantities varying from one milligram to one hundred and seven milligrams per quart?

A. I know of no work done on that. I know of nothing or no proof from either side. I would prefer my milk not adulterated with paraffin.

Q. You mean, as pediatrician?

A. As a pediatrician, yes.

Q. Doctor, assuming that as a pediatrician you are attending an infant that is suffering from infant diarrhea or from some other diseased condition of the stomach or intestines, in the event that you learned that that child was being fed milk which contained undis-

solved paraffin in quantities varying from one milligram per quart to one hundred and seven milligrams per quart, what, if anything, would you do?

A. In milligrams it is hard to translate, but I would have a very strong feeling that if the paraffin was flaky or anything of that sort, I would not use it.

Q. The paraffin is undissolved.

A. If the paraffin is undissolved, in flakes, I would not use it.

Q. And in the event that you found that it was being used, what would you do?

A. I would discontinue it.

Q. Why?

A. After you handle babies awhile you avoid every appearance of evil, even. If you know it is not particularly harmful, or if you have no thought that it is particularly harmful, you are going to avoid any chance whatever, anyway.

Mr. Schaefer: That is all.

Cross-Examination by Mr. Gariepy.

Q. Doctor, do you know any cases of record where 2011 babies have been afflicted with any disease of the intestinal tract and that the disease has been aggravated by reason of undissolved paraffin in milk?

A. I made the statement that I did not know the amount.

Q. This is just your surmise, offhand.

A. Yes.

Q. As a pediatrician?

A. Yes.

Q. When a baby gets milk, it gets the milk warm, doesn't it?

A. Yes.

Q. And to what temperature is the milk warmed?

A. It would be around 98 to 100.

Q. And when would that paraffin melt that Mr. Schaefer asked you about, as being in flaky quantities?

A. I could not say, but I think around 120.

Q. And when you feed this milk to the baby you do not feed it right out of the cup or the bottle, do you? You feed it through some receptacle, don't you?

A. It depends on the age of the baby.

Q. We are talking now about babies one year old or under, Doctor.

A. You feed them through the bottle.

Q. You feed them through a bottle?

2012 A. Yes.

Q. And when you feed them through the bottle you have a nipple on the bottle.

A. Yes.

Q. And is that paraffin so big, that you have in mind, that it would not go through the hole of the nipple?

A. That is what I said; it was flaky.

Q. Did you ever hear or see any flaky-particle of paraffin in a bottle of milk that was fed to a baby that did not go through the nipple?

A. I have never fed, to the best of my knowledge, milk to a baby out of a paper bottle.

Q. Or out of any bottle that had paraffin in it?

A. So far as I know.

Q. You do not know of any cases of record where they did that, do you?

A. No, sir.

Q. Paraffin is an inert matter, is it not?

A. So far as I know.

Q. What is it made out of chemically, Doctor?

A. It is made of—well, it is a by-product of oil.

Q. And sometimes children are given oil to secure action in the intestinal tract, are they not?

A. They are.

Q. That does not give them any bad effects, does it?

2013 A. There is a little dispute just now about that. There is some recent literature which seems to show that vitamin C is not absorbed well where the paraffin oil is used.

Q. Do you know what the customary treatment is in Cook County Hospital now, in post operative cases, in order to secure a bowel treatment easily and without distress?

A. I do not.

Q. Do you know whether they give any oil treatments at all there?

A. I give the oil myself.

Q. And did you ever have any harmful effects from doing it?

A. Not that I know of. I am only saying what the recent literature is indicating.

Q. How big is this hole usually employed in these nipples or made in these nipples used on baby bottles?

A. It is quite small. Ordinarily it is said the average needle is used to puncture the hole with.

Q. And the paraffin that you refer to in your opinion, in answering Mr. Schaefer's question, then, I take it, would have to be as big as the end of a needle or large, is that it?

A. Yes.

2014 Q. And you do not know of any cases of that size doing injury, do you?

A. I know of no cases because I have not used it.

Mr. Gariepy: That is all, Doctor. Just a minute, one more question, please.

Q. If the paraffin was of a size sufficient to do any harm, then it would be too large to go through the hole of the nipple, wouldn't it?

A. Well, I would not say just that. If for no other reason, you would be terribly annoyed by having to take the nipple off, and contaminate it, and shake out the paraffin.

Q. But you have had no experience in it?

A. I have had no experience in it.

Q. And have you ever read of any such experience, Doctor, in pediatrics?

A. No, sir.

Mr. Gariepy: That is all.

Redirect Examination by Mr. Schaefer.

Q. Doctor, are babies ever fed milk by any method other than through a bottle?

A. Yes, sir. They are gavaged.

Q. What is that?

A. Fed through a stomach tube.

2015 Q. At what age do infants usually start drinking milk out of glasses, Doctor?

A. Any time from four months on. Usually the mother tries in about five and a half or six months.

Q. Doctor, if an infant five and a half to six months old was suffering from infant diarrhea, the nipple which you have alluded to in answering Mr. Gariepy's question would afford no protection in keeping paraffin from entering the intestinal tract of the baby, would it?

A. It would not.

Mr. Schaefer: That is all

Recross Examination by Mr. Gariepy.

Q. Doctor, have you made any inquiry of pediatricians or health commissioners where single service containers are in use for the distribution of fresh fluid milk in regard to their experience in irritating the tender, sensitive tracts of babies?

A. I have not.

Q. Or these babies that Mr. Schaefer referred to, of four and a half or five months old?

A. I have not.

Q. Or any children up to twelve years old?

A. I have not.

2016 Mr. Gariepy: That is all.

Mr. Schaefer: That is all, Doctor. Thank you.

(Witness excused.)

Mr. Schaefer: Doctor Dulak.

FRANCIS A. DULAK, called as a witness on behalf of the defendants, having been first duly sworn, testified as follows:

Direct Examination by Mr. Schaefer.

Q. State your name, doctor.

A. Francis A. Dulak.

Q. Where do you live, doctor?

A. 2050 Humboldt Boulevard, Chicago.

Q. And your occupation?

A. Physician and surgeon.

Q. When were you licensed to practice medicine?

A. In 1916.

Q. Where did you receive your education, if any, doctor?

A. Loyalo University and the University of Vienna.

Q. Are you connected with the Board of Health of the City of Chicago?

A. Yes, sir.

Q. In what capacity, doctor?

2017 A. At the present time I am secretary of the Board of Health.

Q. For how long have you been connected with the Board of Health?

A. Seven years.

Q. As a member of the Board of Health of the City of Chicago have you had occasion to consider the question of the use of paper containers for the distribution of fresh fluid milk in the city?

A. Yes, sir.

Q. When did that matter first come to your attention?

A. Why, it is some time ago. I do not remember exactly the date.

Q. What personal knowledge, if any, doctor, do you have of the operation of paper mills?

A. None whatever.

Q. Which manufacture paper board for use in paper milk containers?

A. None.

Q. Do you have any personal knowledge of the operation of any paper mills?

A. I have not.

Q. What personal knowledge, if any, do you have of the operation of plants in which paper board for use in milk containers is cut and printed?

2018 A. None whatever.

Q. What personal knowledge do you have, if any, as to the bacterial effect of paraffin on paper?

A. I have none at all. I don't know much about it.

Q. Doctor, have you any personal opinion as to whether or not the use of paper containers for the distribution of fresh fluid milk should be permitted in the city of Chicago?

Mr. Garipey: I object to that question, as showing no qualifications or ability or knowledge on the part of this witness to answer that question intelligently.

The Master: I will sustain the objection. He has voted as a member of the Board of Health. That is official action. You are now calling him to impeach his own vote?

Mr. Schaefer: No, sir, I am not. You expressed some concern as to why these witnesses were called.

The Master: Not concern. Just interest.

Mr. Schaefer: Then interest. Let me explain my position, if you will, Master.

What is involved in this case, as I see it, is the reasonableness of an ordinance of the City of Chicago. Going to that question, you have been hearing evidence over an extended period, introduced on behalf of the plaintiff, tending or intended to show the unreasonableness of that ordinance, and evidence introduced on behalf of

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the defendants tending or intended to show the reasonableness of that ordinance.

The Master: No, I don't think that is stating the issue quite accurately. As I recall the pleadings, there are two points here. First, that the ordinance should be construed as broad enough to include within the term of "standard milk bottle" paper containers.

Mr. Schaefer: That is right.

The Master: And, secondly, if the ordinance is interpreted so as to exclude the single service container, then the ordinance or the action of the Board of Health thereunder is arbitrary and discriminatory and unreasonable.

Mr. Schaefer: That is right, yes, sir. It is to the second point that I was addressing myself, as obviously this testimony has not to do with the first point.

The Master: You are talking about the ordinance. Nobody has introduced any evidence here as to the resolution of the Board of Health, until you just brought it in here this afternoon, and the Board of Health, up to this time, in its answer at least, made the contention, or made a double 2020 contention, namely, first, that the ordinance, properly construed, excluded the single service container, and, secondly, that the allegations of the bill of complaint, to the effect that the containers are safe and free from any objection, are not well taken; in other words, you deny all of their allegations as to safety.

Mr. Schaefer: And we assert the ordinance is reasonable.

The Master: All right. Now then, you bring in the resolution of the Board of Health, which is a recommendation to the City Council to amend the ordinance to include the single service containers specifically.

Mr. Schaefer: Yes, sir.

The Master: It is to be assumed that unless they thought the containers were safe, they would not make any such recommendation, so that, if anything, the resolution tends to establish the contention of the plaintiff here, that there is no objection to the containers on the ground that they are unsafe or unhealthful.

Now, you come in here with witnesses from the Board of Health. I do not know what their purpose is. You started out by putting them on as witnesses in chief, as just 2021 further experts. The case was reopened here to give you an opportunity to bring in some evidence concern-

ing the resolution. Counsel here have not objected to your putting on further evidence of experts, and I have permitted you to do it. Now, you come along with a witness and ask him whether he has any opinion as to whether the use of paper containers for the distribution of fresh fluid milk is safe. He has expressed himself by his vote on this resolution.

Mr. Schaefer: If I may state my position, it is this: Throughout this trial every time that an expression of opinion with respect to the subject matter in issue here has been made from a new source, from a source that was not heretofore before you, we have attempted to bring it in and have brought it in. For example, the United States adopting these regulations, we brought that matter out on cross-examination. If this matter occurred before we closed our proof, we would have brought it in then. What you have here now is the action of the Board of Health at its meeting on October 16th, as an expression of opinion by a group not heretofore heard from.

The Master: But they are defendants in this case, against whose action complaint is made.

Mr. Gariepy: That is right.

2022 The Master: Who in their answer stated that they thought the containers were unsafe and who, it will be argued, by their action in passing a resolution are now on record as thinking they are all right, excepting that the ordinance does not permit the use of such containers and therefore they recommend an amendment to the ordinance to include such containers. You bring in the resolution of the Board of Health, which impliedly says that now the Board of Health considers those containers as unobjectionable, but not permitted to be used by reason of the language of the ordinance. Now, the evidence here produced by your witness is that all of the members of the Board of Health voted for this resolution, excepting Doctor Arnold, who was present and did not vote either way. What is the purpose of bringing in this witness now, to impeach this resolution?

Mr. Schaefer: No, sir, I have not attempted to do that at any time.

Mr. Gariepy: He has spoken by being a party to the resolution and a member of the Board.

Mr. Schaefer: May I proceed, Master?

The Master: Yes.

Mr. Schaefer: You have here an expression of 2023 opinion, as I said, as to a matter in controversy, by a group not heretofore heard from. Their opinion is entitled to such weight as it gets by reason of their knowledge of this subject and no further, so far as the validity or reasonableness of the ordinance is concerned.

The Master: Now, let us see. You are representing whom here?

Mr. Schaefer: All of the defendants in this case.

The Master: You are representing the Board of Health?

Mr. Schaefer: And the City of Chicago:

The Master: And the Board of Health has stated that it considers the use of the single service container as objectionable. That is, in its answer. Now the Board of Health states that it thinks it is unobjectionable and recommends that the ordinance permit its use. That is, just some of the defendants. Do you object to the use of that opinion as against the City of Chicago, which is also a defendant?

Mr. Schaefer: I do not object to the use of it. I want to show on what it is based, that is all. It is like any other opinion.

The Master: In other words, you want to attack 2024 the weight—

Mr. Schaefer: I am not attacking anything. I am just bringing the facts before you, so that you can give proper weight to that opinion.

The Master: In other words, you want me to give it as little weight as possible?

Mr. Schaefer: Well, if pressed, I suppose I would state that. It seems to me that the knowledge of the men who have expressed an opinion is pertinent in determining what weight to give to that opinion.

The Master: Well, personally, I cannot see how you, representing the Board of Health, which has filed an answer here stating that the single service containers are unsafe, can let the Board of Health come in and express an opinion, based upon the opinion of the United States Public Health Service, that they are safe.

Mr. Schaefer: If that is what it is based on, that is what I want to show. I want to show on what that opinion is based, and I submit I have a right to do that. Now, so far as our putting it in or the plaintiff putting it in, I have no illusion as to whether or not it should have gone into evidence.

The Master: They probably would have brought it in themselves.

2025 Mr. Schaefer: I think so, but it is an opinion as to one of the issues in this case, and I think you are entitled to know on what it is based.

The Master: It is something occurring after the suit, but in the course of trial, in which the defendants, the Board of Health, have apparently changed their opinion or have changed their position on this subject of safety. That is something that the plaintiff might bring in to show the present opinion of the Board of Health. Then the only question remaining in this case, if that action is to be taken as conclusive on the part of the Board of Health, would be whether the ordinance is to be considered as discriminatory and unreasonable because it excludes containers, which the Board of Health says are safe.

Mr. Schaefer: That is right.

The Master: Now, if you were representing only the Board of Health, I doubt whether you could come in here and say that the Board of Health's action is not to be given full weight, which the plaintiff would contend for. But you come in and say that you also represent the City of Chicago.

Mr. Schaefer: Yes, sir. As a matter of fact, I submit that the relation between the clients that we here represent and ourselves as their counsel is a matter lying between the defendants and their counsel. No defendant has objected. It seems to me no one else has any right to. Here is opinion evidence, and I want to show you on what that opinion is based. I want to find out and I want you to know. It is a factor which obviously you are going to consider in deciding this case.

The Master: In other words, if the Board of Health asks the City Council to pass an ordinance in which the Board of Health says it is safe, I must in this trial before me, in which the Board of Health has said that it is unsafe, tell the Board of Health they are wrong about it, after they solemnly say they think that the container is safe.

Mr. Schaefer: No, sir, that is not what I am saying. As a matter of fact, the inclusion of the individual members of the Board of Health as defendants is a matter of law and is not necessarily involved. What is involved is an ordinance. The ordinance can be attacked without individual defendants. The fact they are individual defendants here

is just because the plaintiff so framed its case. The essential question is still the same, the reasonableness
2027 of that ordinance, and I submit that you ought to hear opinion evidence as it is advanced on that question.

Mr. Gariepy: We object to hearing any opinion evidence, Master, when an official action of the Board is brought in by the defendants, as shown by Mr. Schaefer. If he attempted to impeach their action for fraud or anything else, that is another question, but the counsel is bound, as is the City of Chicago, by the action of the defendants as to the merits of this litigation. It is always the rule that they are bound by such action. It is not a matter of opinion evidence. It is an official action of the Board, passed by resolution, where all of the members were present and took a part, in voting for it, with Doctor Arnold standing by.

The Master: You put your question again now, Mr. Schaefer.

Mr. Schaefer: Q. Doctor Dulak, do you have any personal opinion as to whether or not, from the point of view of the public health, the use of paper containers for the distribution of milk in the city of Chicago should or should not be permitted?

Mr. Gariepy: I object to that question.

The Master: You object on the ground that there is
2028 no qualification shown?

Mr. Gariepy: That is one of the grounds on which I object, and also that the doctor has already expressed himself as a member of the Board of Health by officially voting on the matter.

The Master: Your first objection is that he is not qualified. I will sustain the objection, and in order to shorten it I will let you make your record, Mr. Schaefer.

Mr. Schaefer: I haven't any record to make. I cannot make an offer of proof.

That is all, Doctor.

Mr. Gariepy: That is all, Doctor.

The Master: Ask your question and put it in the record, if you wish.

Mr. Schaefer: No, I do not care to.

The Master: I am offering to let you ask the question of the doctor, if you wish, and have it in the record.

Mr. Schaefer: Yes, sir.

The Master: You do not care to put him on then for that?

Mr. Schaefer: No, sir.

The Master: Very well.

(Witness excused.)

2029 Mr. Schaefer: Mr. Reynolds.

HARRY J. REYNOLDS, called as a witness on behalf of the defendants, having been first duly sworn, testified as follows:

Direct Examination by Mr. Schaefer.

Q. Will you state your name, please?

A. Harry J. Reynolds.

Q. Where do you live, Mr. Reynolds?

A. 3240 Lake Shore Drive.

Q. Are you a member of the Board of Health of the City of Chicago?

A. I am.

Q. For how long have you been a member?

A. Six years.

Q. What personal knowledge, if any, have you, Mr. Reynolds, as to the operation of paper mills which manufacture board for use in paper milk containers?

Mr. Gariépy: I object. There have been no qualifications shown on which this witness could answer.

Mr. Schaefer: That is just the reason for the question.

The Master: Overruled.

Mr. Schaefer: Read the question, Mr. Golding.

2030 (Mr. Schaefer's last question was read by the reporter as above recorded.)

The Witness: I have none.

Mr. Schaefer: Q. And what personal knowledge, if any, have you, Mr. Reynolds, as to the operation of plants in which paper board to be used in paper milk containers is cut, formed and printed?

A. I have none.

Q. What personal knowledge, if any, have you with respect to the bactericidal action of hot paraffin upon paper?

A. Will you repeat that question?

Mr. Schaefer: Read it, Mr. Golding.

(Mr. Schaefer's last question was read by the reporter as above recorded.)

The Witness: A. I have none.

Mr. Schaefer: Q. What personal knowledge have you, if any, with respect to the filling of paper milk containers with milk?

The Master: What is that?

Mr. Schaefer: Filling them with milk.

The Witness: A. I have none.

Mr. Schaefer: Q. Do you attach any public health significance, Mr. Reynolds, to the fact that paper milk containers are uniformly absorbent?

2031 Mr. Gariépy: I object to that question. There has been no showing on the part of this witness that he knows or that he is qualified to answer that question as a public health expert.

The Master: Read the question.

(Mr. Schaefer's last question was read by the reporter as above recorded.)

Mr. Gariépy: I object to that question, Master. It is a subterfuge and attempt to impeach the official action of this officer and this member of the Board of Health, and there is no qualification shown on which he could answer that question intelligently at all.

The Master: Q. Do you know whether they are absorbent or not?

A. Well, I can qualify that in this respect: That after having numerous discussions with the members of the Board of Health at the various meetings, namely, hearing Doctor Black, Doctor Bundesen, Doctor Dulak and Doctor Arnold, who I consider an outstanding bacteriologist, and having it explained to me by him on these occasions, I think the paper is absorbent.

Mr. Gariépy: I move to strike that, Master. His opinion is based on what he heard from somebody else and not of his own knowledge, ability or research.

The Master: Yes, that may be stricken.

2032 Q. You know nothing outside of what somebody else has told you?

A. No. Only after seeing a lot of samples that were tested by Doctor Arnold, it proved to me from a layman's standpoint that they were absorbent.

Q. You never performed any experiments yourself?

A. None whatever.

The Master: What is Mr. Schaefer's question again, Mr. Reporter?

(Mr. Schaefer's question was read by the reporter as follows: "Do you attach any public health significance, Mr. Reynolds, to the fact that paper milk containers are uniformly absorbent?")

The Master: I will let him answer.

Q. Do you attach any significance to it?

A. Yes, I do.

Mr. Schaefer: Q. What significance do you attach to the fact that paper containers are absorbent?

Mr. Gariepy: I am making the same objection, Master, to that question. He is attempting by subterfuge, by asking this witness questions, to impeach his action as a member of the Board of Health in recommending the use of single service containers. It is quite artful and astute 2033 on the part of counsel, but I think it is very obvious to the Master.

The Master: If they are absorbent to a considerable degree, I think it is conceded that there is some health significance, is it not?

Mr. Gariepy: Yes, but he has already gone on record, by Exhibit 29, in saying the ordinance should permit their use, and he cannot impeach his own action.

The Master: That is another question. I think it is agreed here that if paper board containers are absorbent, there is some significance to it.

Mr. Gariepy: There cannot be any public health significance that means anything, otherwise they would not have passed a resolution.

The Master: He says he does regard it as significant.

Q. Now, you have said that you regard it as of some public health significance?

A. Yes.

Q. Do you have any technical knowledge as to in what respect and what effect it may have?

A. Well—

Q. Let me put it this way: Do you have any technical knowledge concerning the effect of the absorbing qualities of paper milk containers?

A. Only that the United States Public Health Service also states that they are absorbent.

2034 Q. I say, do you have any technical knowledge on the subject as to the effect on the public health?

A. Only what I have been told by the doctors or members of the Board.

Mr. Schaefer: That is not my question. That question assumes that technical knowledge is necessary to determine whether or not there is public health significance in the fact a milk container is absorbent. That I submit is a matter that does not require any technical knowledge to answer. Some of the other questions may, but that question does not.

The Master: He has stated whatever he knows about the subject is based upon somebody's else statements to him. I think it is conceded here that if paper board containers are absorbent, it is a question of public health significance. Now then you proceed to ask him in what respect.

Mr. Schaefer: Yes, sir.

The Master: How can he know in what respect?

Mr. Schaefer: Let us see whether he can answer that.

The Master: He stated he has no knowledge of the subject.

Mr. Schaefer: He stated in answer to your question that he had no technical knowledge.

2035 The Master: Yes.

Mr. Schaefer: That is a question for which technical knowledge is not necessary.

The Master: Let us see now.

Q. Do you have any knowledge of any kind upon that subject, of your own?

A. Only that if it is absorbent and milk is put into the paper container, the milk naturally will absorb any ingredients or bacteria that may be in the paper.

Q. That is the extent of your knowledge on the subject?

A. (Witness nods affirmatively.)

Mr. Gariepy: The witness is shaking his head, Mr. Reporter, yes.

The Master: Anything further?

Mr. Schaefer: Q. Do you attach any public health significance to the fact that paraffin gets into the milk which is placed in paraffined paper milk containers?

Mr. Gariepy: I object to that question. It is an assumption on the part of counsel that it does. If this witness is not qualified to answer from a public health standpoint, then he should not be permitted to answer.

The Master: Q. What is your business?

2036 A. What is my line of business?

Q. Yes. I notice he called you Mr. Reynolds. I don't know whether he asked you your occupation.

A. I am the layman member of the Board of Health. I am president of the Independent Boiler and Tank Company.

The Master: How is this witness qualified to give an opinion on the subject of the effect of paraffin?

Mr. Schaefer: Here again I say it does not require any technical knowledge, bacteriological, medical or otherwise.

Mr. Gariepy: Then you can ask a layman about it, Master.

The Master: Yes.

Mr. Schaefer: That is what I am doing.

Mr. Gariepy: Then the Master takes notice of it as a matter of common knowledge.

Mr. Schaefer: That is all, Mr. Reynolds.

Mr. Gariepy: That is all.

(Witness excused.)

The Master: Off the record.

(Discussion had off the record.)

Mr. Schaefer: I offer in evidence Defendants' Exhibits 29 and 30.

The Master: What are they?

2037 Mr. Schaefer: Defendants' Exhibit 29 is a copy of a resolution adopted by the Board of Health of the City of Chicago on October 16th, 1939, with respect to single service containers for milk, consisting of seven pages.

Defendants' Exhibit 30 is a photostatic copy of a letter from Thomas Parran, Surgeon-General of the United States of America, addressed to Doctor Herman N. Bundesen, dated June 27th, 1939, received by the Board of Health July 5, 1939, transmitting to Doctor Bundesen copies of the regulations adopted by the United States Public Health Service with respect to paper containers. That consists of three sheets.

By agreement of counsel, the last two pages of the Defendants' Exhibit 30 are withdrawn, because they are identical with the last two pages of Plaintiff's Exhibit 61.

The Master: Defendants' Exhibits 29 and 30 may be received.

(Said documents, being copy of resolution adopted by Board of Health, October 16, 1939 with respect to single service containers, and a photostatic copy of letter from

Thomas Parran to Doctor Bundesen, dated June 27, 2038 1939, were received in evidence and marked respectively DEFENDANTS' EXHIBITS 29 and 30, and are attached hereto and made a part of the record hereof.)

Mr. Schaefer: That is all, sir. We close now.

Mr. Gariepy: We have Thursday, I understand, for our rebuttal?

The Master: Yes. Let the record show that this hearing will be resumed at 10:00 o'clock A. M. on next Thursday.

(Whereupon an adjournment was taken in the above entitled cause to 10:00 o'clock A. M., Thursday, October 26, 1939.)

2039

• • (Caption) • •

Thursday, October 26, 1939,
10:00 o'clock a. m.

Met, pursuant to adjournment.

Present:

Mr. Gariepy, Mr. Rall, on behalf of plaintiff.
Mr. Schaefer, Mr. Horan, on behalf of defendants.

2040 Mr. Gariepy: Swear the witness please, Master.

DAVID J. DAVIS, called as a witness on behalf of the plaintiff, in rebuttal, having been first duly sworn, testified as follows:

Direct Examination by Mr. Gariepy.

Q. State your name, please.

A. David J. Davis.

Q. And your address, residence.

A. 721 Elmwood avenue, Wilmette.

Q. What is your business or occupation?

A. Dean of the College of Medicine, University of Illinois.

Q. And how long have you been such?

A. Fifteen years.

Q. Is Doctor Lloyd Arnold one of the professors at the University of Illinois, under your jurisdiction?

A. Yes.

Q. I subpoenaed you to produce the contract of employment between the University of Illinois and Doctor Lloyd Arnold concerning his services there.

A. Yes.

Q. Have you that with you?

A. Yes.

2041 Q. Will you produce it, please?

A. Yes (handing document to Mr. Gariepy).

Mr. Gariepy: Mr. Golding, will you mark that Plaintiff's Exhibit 90 for identification?

(The document referred to was thereupon marked Plaintiff's Exhibit No. 90 for identification.)

Mr. Gariepy: Q. Doctor, showing you Plaintiff's Exhibit No. 90 for identification, which you just handed to me, a blue piece of paper dated July 24, 1939, is that the present existing contract of the University of Illinois with Doctor Lloyd Arnold for his professional services as a professor and a member of the staff?

A. Yes.

Q. Is there any other contract with Doctor Arnold concerning his services and the time he is to put in at the University and the time outside?

A. No.

Q. That is all?

A. That is all.

Mr. Gariepy: I offer that in evidence, counsel. as PLAINTIFF'S EXHIBIT 90.

Mr. Schaefer: The only objection to that is as to the materiality. We are running up a record here. I do not see that Doctor Arnold's contract with the University 2042 is pertinent. I do not have any feeling one way or the other, if you want to let it in.

Mr. Gariepy: My answer to that is that this is competent. Doctor Lloyd Arnold testified in the record, Page 1711, to be exact, that he had a contract with the Board of Trustees of the University of Illinois for 80 per cent of his time.

Mr. Schaefer: That is what I say. If you want to put it in, O. K.; I don't care. To save time, I will withdraw the objection.

Mr. Gariepy: No, we withdraw the offer, then.

Q. Is there any other contract that you have with Doctor Arnold concerning his services?

A. No.

Mr. Gariepy: You keep this paper then, doctor. Is there any cross-examination?

Mr. Schaefer: No.

Mr. Gariepy: Doctor Lloyd Arnold, will you take the stand?

Mr. Schaefer: Are you through with Dean Davis?

Mr. Gariepy: Yes.

(Witness excused.)

Mr. Schaefer: I am just wondering what the status of the record is.

The Master: This is rebuttal, now.

2043 Mr. Schaefer: Yes, I am wondering with respect to this point. Doctor Arnold's testimony is to the

effect that his contract called for 80 per cent of his time has been challenged and the contract has been produced.

The Master: It shows in the record.

Mr. Schaefer: It has been subpoenaed all over town. It has been here.

The Master: The record now shows that he spends 80 per cent of his time under his contract or he is obligated to spend 80 per cent of his time. You made that statement that the contract shows it and it is conceded by Mr. Gariepy.

Mr. Schaefer: If that is conceded, all right.

The Master: Although I do not know what the materiality is, whether he spends 80 or 50 or 40 per cent of his time there. I don't know what that has to do with the case.

LLOYD ARNOLD, recalled as a witness on behalf of the plaintiff, in rebuttal, having been heretofore duly sworn, resumed the stand and testified further as follows:

Direct Examination by Mr. Gariepy.

Q. Doctor Arnold, you are the same Doctor Arnold who testified here the other day?

A. I am.

Q. And did I understand you to say you were professor of bacteriology at Loyola University in 1922?

A. In 1921. I think I came there in 1921 or 1922, yes, sir.

Q. At what office, what position?

A. I came there in bacteriology, pathology, public health and clinical diagnosis.

Q. As professor?

A. I came there as associate professor and then was promoted to professor.

Q. And what year were you promoted to professor?

A. I have forgotten. The first or second year I was there. I think the second year.

Q. That would be what year?

A. About 1922, I expect, or 1923, I don't know which.

Q. Will you look at a bulletin of the Loyola University School of Medicine for the year of 1921-1922, especially with reference to page 18, listing you as a member of the

faculty, and tell me whether that is a correct listing on the lefthand sheet there?

A. Yes, sir.

Q. As assistant professor?

2045 A. Yes, it must be, if it is in there.

Q. Then you want to stand corrected as to being an associate professor and full professor, is that right?

A. Yes, sir.

Mr. Schaefer: What year does that cover?

Mr. Gariepy: It is the fall, I take it, of 1921, and the whole year of 1922. These are put out in the fall by all of these universities.

Mr. Schaefer: You mean, the scholastic year of 1921 and 1922, running to about June of 1922?

Mr. Gariepy: That is right.

Q. Doctor, you were subpoenaed to produce the cartons or containers and materials that you testified on direct examination you received from the Ex-Cell-O Corporation in the year 1938?

A. Yes, sir, these are the ones. That is all I have left of them (handing cartons to Mr. Gariepy).

Mr. Gariepy: Is this the way they came?

A. No, they came in a package. The outside package is gone. They came to my home address. I picked up those at home this morning. That is all I had left.

Q. Referring to these that you handed me.

A. Yes, sir.

Q. Not those?

A. Those that I handed you, I think, are Pure-
2046 Pak containers.

Q. Was there any letter in connection with that?

A. No, sir, I don't remember a letter at all, Mr. Gariepy.

Q. Were there any Risdon Dairy containers, from the Risdon Dairy in Detroit?

A. I don't remember any of them.

Q. These are blanks of Sylvan-Seal?

A. I don't remember. I didn't look at the dairies.

Q. These are all Sylvan-Seal?

A. I didn't look at the dairies.

Q. Are those the ones you referred to in your direct examination, doctor, as coming from Detroit?

A. Yes, sir. Early in 1938. I don't just remember the date.

Q. You testified on direct also that you did work for Seal-Rite Corporation during the last six months, from June to December, 1938, and I asked you to produce this morning, if you have them, vouchers for services in connection with the last research work and the date you did it in the year 1938 for Seal-Rite Corporation. Have you anything on that?

A. No, sir. I was consultant to Seal-Rite. I was on a monthly remuneration fee.

Q. What I wanted was the last time you received 2047 any remuneration from the Seal-Rite Corporation in connection with their research work on that paper bottle that you referred to on direct.

A. I received the last check from them in December for November's services.

Q. If I understood you correctly on direct examination, doctor, you stated that one hundred and thirty-eight tests were performed in the Board of Health under your direction and suggestion, from February 2, up until the present time, is that right?

A. I do not recall. One hundred and thirty-eight tests?

Q. Yes.

A. No, I would not remember any definite number of tests at all.

Q. You do not?

A. No, sir, I do not.

Q. Do you know exactly how many tests were performed over there at the Board of Health?

A. I do not, no, sir.

Mr. Gariepy: That is all, doctor.

The Master: Any questions, Mr. Schaefer?

Mr. Schaefer: No.

(Witness excused.)

2048 Mr. Gariepy: Mr. Martinek, will you take the stand?

MATTHEW J. MARTINEK, was recalled as a witness on behalf of the plaintiff, in rebuttal, having been heretofore duly sworn, resumed the stand and testified further as follows:

Direct Examination by Mr. Gariepy.

Q. You are the same Matthew J. Martinek who testified here before?

A. Yes, sir.

Q. I subpoenaed you to produce original documents with relation to the tests that you testified you performed in connection with paraffin suspension. Have you those with you?

A. I have.

Q. May I see them?

A. Yes. (Witness hands cards to Mr. Gariepy.)

Q. Are these in the order they were made out, by dates?

A. They are mixed. We had to get them at random this morning. We would have to bring in three hundred of them, to bring them all in.

Q. Can you pick out any of these cards by these tests, Mr. Martinek, on Pure-Pak containers?

2049 **A.** These were all picked as Pure-Pak this morning. The numbers were referred to, the ones we have there, on the bottoms of the cartons. I can pick out any one you wish.

Q. You say these are all Pure-Pak?

A. Yes, sir.

Q. What shows that? These are just blank numbers. How do you refer to Pure-Pak or another container on there?

A. This dairy number will be found on a Pure-Pak container.

Q. Where are those containers?

A. They are right here, these cards here, right back there. I will bring them out for you.

Q. No, I will get them. Are these the folders in which they came?

A. Yes.

Q. These are Bowman folders?

A. We just saved them. I don't know that they exactly came in those, but we kept the carton forms, those folders.

Q. Where is there anything on there about Dean or Fieldcrest, on these folders? You got them around Cook County or within a radius of seventy-five miles didn't you?

A. I suppose so. I don't know where they got them.

2050 The Master: Q. You did not get them?

A. No, I didn't get those, no.

Mr. Gariepy: Q. And these are the total number of Pure-Pak containers that you say you performed these tests concerning paraffin suspension in milk on?

A. No, sir, they are not all.

Q. How many more of them are there, Mr. Martinek?

A. I don't know.

Q. There is about thirty of them?

A. Here is the only thing. When I counted these up I counted them with the others, with the American Can, so I don't know.

Mr. Schaefer: Mr. Martinek, you might explain to the Master at what time this subpoena was served on you.

A. It was brought in at 9:00 o'clock this morning.

Mr. Gariepy: Q. These numbers that you refer to on the cards, are these numbers indicated on the flaps, is that right?

A. Yes.

Q. You don't know anything about the condition in which these containers that you brought in here this morning were taken from the plant, do you?

A. I do not.

2051 Q. Or whether they were taken from the plant?

A. I do not.

Q. How many altogether, do you know, Mr. Martinek, by looking at these cards, can you tell the Master you performed paraffin suspension tests on?

A. Oh, about twenty or so.

Q. Twenty or so?

A. Yes.

Q. Is that all, or just Pure-Pak?

A. Well, no. There were three hundred, but my chemists ran some of the tests. I supervised the work.

Q. There were three hundred on Pure-Pak?

A. No.

Q. Or three hundred altogether?

A. I don't know how many on Pure-Pak. I absolutely have no idea.

Q. And that applies to the testimony you gave in the record from page 1602 to page 1612 concerning this paraffin suspension test on all of them? You don't know which ones it pertains to, is that it?

Mr. Schaefer: I object to that. How can the witness know what is in the transcript at page 1602?

Mr. Gariepy: Those are the pages on which he gave his testimony.

The Master: Q. Do you know?

2052 Mr. Schaefer: If the Master please, he has not seen the transcript.

The Witness: What is that?

The Master: Read the question.

(Mr. Gariepy's last question was read as above recorded.)

Mr. Gariepy: Q. Whether Pure-Pak or another type of container.

A. I do not.

Q. Did you perform any tests in connection with these containers concerning lead content in milk?

A. No, sir.

Mr. Gariepy: That is all, Mr. Martinek.

The Master: Any cross?

Cross-Examination by Mr. Schaefer.

Q. To the best of your recollection, Mr. Martinek, how many of the containers that you examined for paraffin suspension in milk were containers of the Pure-Pak type, which is the type that you have here?

A. It is pretty hard to say, because we had them mixed. At one time we had quite a few Pure-Paks and then we had the American Can also. It would be pretty hard to tell, because it would be purely a guess and I would not want to guess.

2053 Q. The records would show?

The records would show, if we sorted them out. That is what we are doing now.

Mr. Schaefer: That is all.

Redirect Examination by Mr. Gariepy.

Q. Are they in the same condition, these containers you brought over this morning, as when you received them?

A. They also have the methylene blue streaks in them and they might be slightly damaged. I would not know that.

Mr. Gariepy: I see. That is all.

Mr. Schaefer: That is all. Thank you, Mr. Martinek.
(Witness excused.)

Mr. Gariepy: I have not had an opportunity to say a word to this next witness this morning. The fact is, I have never him. So I am going to ask Mr. Rall, who has talked to him, to ask him the questions.

2054 WILLIAM D. McNALLY, called as a witness on behalf of the plaintiff, in rebuttal, having been first duly sworn, testified as follows:

Direct Examination by Mr. Rall.

Q. Will you state your name, please?

A. William D. McNally.

Q. Where do you live?

A. 3734 North Harding avenue, Chicago, Illinois.

Q. What is your profession or occupation?

A. I am a physician and toxicologist.

Q. Are you licensed to practice medicine in the state of Illinois?

A. I have practiced medicine and have been licensed over twenty years in the city of Chicago, Cook County, Illinois.

Q. Did you attend any schools in preparation for the practice of medicine?

A. I did.

Q. Where?

A. The University of Michigan, University of Illinois, and Chicago Rush Medical College.

Q. Did you receive any degrees from any of these schools?

2055 A. I did.

Q. What were they?

A. A.B. from the University of Michigan, M.D. from the University of Chicago, Rush Medical College.

Q. What has been the nature of your practice, doctor?

A. My practice has been largely that of a physician and a consulting toxicologist.

Q. Have you held any official position?

A. Yes. I was toxicologist to Coroner of Cook County for about seventeen years. I established the first laboratory of toxicology in America.

Q. What is toxicology?

A. Toxicology is the science that treats of poisons, their origins and their detection by chemical or other means.

Q. Of what did your duties consist while you were Coroner's chemist?

A. Examination of the organs of human bodies for poison, examination of medicines for poisoning, and examination of clothing and weapons for stains, blood stains, examination of clothing for seminal stains, and research, and the publication of my research.

Q. Have you published any book?

A. I have published two books.

Q. On what subject?

2056 A. On the subject of toxicology and medical jurisprudence.

Q. Have you written any articles, other than books?

A. Yes. Probably two hundred articles on various phases of poisons and their detection.

Q. Are you familiar with the literature relating to poisons?

A. Very much so.

Q. Your referred to being a consultant in toxicology. Of what does that practice consist?

A. That consists of consulting and conferring with industrial concerns or manufacturing concerns regarding hazards in their plants, the examination of employes, examination of the secretions of those people for the presence of poisons, examination of the blood, to see whether there is destruction of the hemoglobin, blood counts, physical examinations, interpretation of X-rays regarding silicosis.

Q. Are you consulted by other physicians?

A. I am.

Q. Are these consultations frequent or infrequent?

A. They occur frequently.

Q. What is the definition of a poison, doctor?

A. A poison is a substance which when absorbed into the blood stream is capable of seriously affecting
2057 the health or causing death, and that is its chief action.

Q. Have you made any special study of metal poisonings?

A. Yes, sir, I have.

Q. Of what does that study consist?

A. I have made special studies of arsenic, lead and manganese, and published exhaustive articles on the latter metal, manganese.

Q. Of what did your special studies of lead poisons consist?

A. Considerable experimental work with animals and work with human beings, showing the elimination of the lead by various agents and diets.

Q. Does lead poisoning have a more technical name?

A. Well, it is sometimes called plumbism. Most of the lead intoxications, it seems, come from men working with solders or in the smelting of lead. In other words, forms of finely subdivided lead are the chief sources of poisoning.

Q. You referred to lead intoxication. Is that synonymous with lead poisoning?

A. Yes, sir, it is. The laity call it plumbism probably more often than they do lead poisoning.

Q. You say the laity do?

A. Yes. They know it as plumbism.

2058 Q. What are the effects of lead poisoning on the human system?

A. Well, we have acute intoxication where a person has taken half an ounce to an ounce of lead acetate, which causes vomiting and diarrhea. Then we have the acute effect of inhalation, where large quantities of lead fumes are inhaled, causing great muscular weakness, destruction of the blood cells and constipation.

Then we have the chronic form of lead intoxication, where there is great muscular weakness and pain in the part of the anatomy that is used most by that individual. Painters get it in the wrist. Men who are shovelling metal into furnaces get it on the anterior front part of the legs and thighs. There is abdominal cramps. There develops a lead line in those individuals having pyorrhea or a defective denture.

Mr. Schaefer: Q. A lead line, did you say, doctor?

A. Pyorrhea or a defective denture.

Q. The word I missed was, I thought, lead line?

A. Yes, sir, lead line. L-e-a-d l-i-n-e.

Q. Lead line?

A. Lead line is caused by the absorption of lead in the system. It is taken by the blood to the gums which
2059 are diseased and there is hydrogen sulphide there from the decaying of the foods and there is a deposition of very minute particles of lead, which can be seen with the aid of a magnifying glass.

The Master: Q. That is on the gums?

A. On the gums, as they come in between the teeth. It is very rarely seen. Sometimes there is confusion among physicians in diagnosing colored people, seeing an African line and calling it a lead line, which is not so at all. Necessarily all colored people have this blue discoloration below the gums. But this other can be detected by a microscopical examination of a small portion of the affected material squeezed from the gums.

Mr. Rall: Q. Have you seen cases—

A. That is not all. I have a lot more to tell you about that.

Q. All right, continue, doctor.

A. The blood is changed. One of the first things we note in chronic cases of lead intoxication is a reduction in the hemoglobin. Hemoglobin is the red coloring matter of the blood. There is a destruction of the red blood cells, so that in an adult having a count of five million red cells per cubic millimeter of blood, it may be reduced down
2060 to as low as 3,600,000.

These people have arthritic pains in the joints. There is loss of appetite. They lose weight because they have lost their appetite. The pains in the abdomen have been confused with colitis and appendicitis, and those people have been operated on for appendicitis occasionally because of the confusion in the diagnosis.

Diagnosis of lead poisoning can only be made by an examination of the blood showing basophilic stippling or by running a basophilic aggregation known as the McCord test, which is applicable only in acute cases of poisoning.

The other is chronic cases of poisoning, and the demonstration of abnormal amounts of lead in the urine before and after potassium iodide treatments. This is a diagnostic test and my name is connected with the potassium iodide test.

People in the Chicago area eliminate from mere traces of lead up to .09 of a milligram per liter of urine every day.

Q. Are you there referring to the normal?

A. Yes, normal. Anyone in this room would show lead from mere traces up to .09 of a milligram.

The Master: Q. Where do they get this lead?

2061 A. This lead comes from everything we drink and everything we eat. There is not an article which enters your table but what has lead in it.

Mr. Rall: Q. Is that a normal or abnormal condition?

A. That is a normal condition.

Q. And not harmful, I take it?

A. No, sir, it is not.

Q. Have you completed your answer, substantially?

A. I think that covers it.

The Master: Q. Is any part of the lead absorbed in the system as nourishment?

A. No, sir, lead is not a factor, as far as I know, in the metabolism of the human body. The lead taken in these foods, part of it is eliminated in the urine and stool and some of it is deposited in the bones as a tribasic calcium phosphate, an insoluble form, which does not get out into the blood stream, unless the person has an infection, like influenza, pneumonia, or is becoming an alcoholic, when his resistance is lowered and the lead then goes out into the blood stream.

Mr. Rall: Q. Have you seen cases of lead poisoning in adults?

A. Yes, sir, many hundreds of them.

2062 Q. And in children?

A. Yes. I have only seen a couple in children.

Q. What, in your opinion, is one of the causes of lead poisoning in children?

A. The cause of the poison in the children was due to eating the paint off of white painted cribs containing lead acetate.

The Master: Q. What kind of cribs?

A. Cribs painted with white lead. The children would chew the woodwork of the cribs and in that way get the paint.

Mr. Rall: Q. From your own personal experience or from a reading of the literature or from consultation with any other physicians or from any source whatever, do you know of any instances where lead poisoning was attributed to or suspected to be caused by the consumption of milk from printed paper cartons?

A. I do not.

Q. What are the principal causes of lead poisoning?

A. The principal causes of lead poisoning are the inhalation of fumes of finely divided lead, from the smelting of lead, from removing it from steel articles with torches, from the manufacture of lead itself, from the lead carbonate, lead acetate, white lead.

2063 Q. Do you know or have you heard from any source of any instances where lead poisoning was attributed to or suspected to be caused by printing inks used on any type of food container?

A. I have not. I never have been consulted in a case of lead intoxication from that. I have never seen anything in the literature regarding intoxication in foods that were contained in cartons or paper printed with a lead-containing ink.

Q. And that applies to liquid foods as well as solid foods?

A. Yes, sir.

Q. In connection with your study and so forth of lead poisoning, have you studied the question of what quantities of lead cause lead poisoning?

A. Yes. In these large number of people that I have investigated, when the quantity of lead in the urine is over one-tenth of a milligram per 1000 cc.; then we know that they are suffering from mild forms of lead intoxication, that is, from lead not being eliminated normally. After the potassium iodide treatment, this may be increased three or four times. That, of course, is not lead that is causing any trouble. That is lead that has been stored up in the bones, which we have eliminated by our chemical means.

2064 Q. You have this morning, have you not, examined a number of flat paper cartons, including two cartons which are sealed at the side?

A. I examined similar cartons. I did not put my initials on them and number them to see whether they were the same ones, but they were similar to these.

The Master: Let the record show that counsel has exhibited to the witness flat containers.

Mr. Schaefer: I think they are called blanks, for the record, Master.

The Master: What is that?

Mr. Schaefer: I believe they are called blanks.

The Master: Blanks, yes. The flat ones are made by

the Gardner-Richardson Company and the Ex-Cell-O Corporation, or as produced for the Ex-Cell-O Corporation by Gardner-Richardson Company, Middletown, Ohio.

Mr. Rall: In order not to encumber the record, when Mr. Fisher and, I believe, Mr. Taylor, were testifying, a considerable number of these unformed cartons and some that had the side seal seam, but were otherwise not formed, were produced and examined by witnesses. It is my purpose here, Mr. Schaefer, to get the worst example of offset with the type of ink that contains the largest amount of lead in the evidence here, so that having that in mind, 2065 if these cartons do not have enough offset on them, I would like you to get ones that do.

The Master: What do you mean by offset, for the record?

Mr. Rall: The offset being the impression of ink on the blank or inside of the carton.

The Master: You mean the impression from another container or another blank?

Mr. Rall: Yes.

The Master: With which this surface has come in contact?

Mr. Rall: Yes.

I would like to have the reporter mark this blank Plaintiff's Exhibit 91 for identification.

(The blank carton referred to was thereupon marked by the reporter Plaintiff's Exhibit No. 91 for identification.)

Mr. Rall: Q. I show you Plaintiff's Exhibit 91 for identification, doctor. In your examination of the cartons, printed cartons, is that the worst case of what we call offset that you observed?

A. Yes, I think that is the heaviest that I have seen.

Q. Assume, doctor, that paper intended to be used for the packaging of fresh fluid milk is printed with a 2066 printing ink containing from .2 of 1 per cent to 35 per cent of lead, and that in the printing operation—

Mr. Schaefer: Just a minute. What is that? Ten per cent?

Mr. Rall: From .2 of 1 per cent to 35 per cent.

Q. (Continuing)—the ink on the printed surface offsets against and adheres to the paper lying next to it, so as to leave an offset or smear of the ink on the part of the paper intended to form the inside of the milk container; that

the paper is stored and cut so that at this point in the operation the paper is in substantially the form of Plaintiff's Exhibit 91.

Further assume that this paper is then sealed at the sides to form what is called a blank, with the ends open, but the side seams sealed, in substantially the form of Plaintiff's Exhibit 3.

Further assume that these open ended cartons in that form are placed on a machine, which opens the carton and folds over the bottom flaps so as to form a container, with the side seam and the bottom seam sealed, and that in that condition the container is immersed in liquid paraffin U. S. Pharmacopoeia 12, with an American melting point of approximately 125 to 127 degrees Fahrenheit, but assume that in the paraffining operation the paraffin does not cover the ink offset on the inside of the container.

Assume further that the container in this condition is cooled at approximately 40 degrees Fahrenheit, until the paraffin is hardened, and that in that condition it is filled with cool liquid milk, cream, buttermilk or chocolate milk, and that the machine referred to then closes the top of the container thus filled with one of the products mentioned and, under pressure, staples the top flaps, so that the container filled with milk is then sealed in the way that Plaintiff's Exhibit 2 is sealed.

Assume that the pouring spout has not been opened at the time referred to.

Further assume that this package is delivered to a person who places it in the refrigerator for a period varying from twenty-four to ninety-six hours and that the milk or other liquid products referred to is then drunk by said person, or some member of his family.

Do you have an opinion whether or not the presence of the ink on the inside of the carton or any of the other factors which I described in the question presents any hazard to the health of the person so consuming the milk, or other liquid products mentioned?

A. I have an opinion.

Q. Will you state what that opinion is?

A. That the hypothetical carton as described by you containing milk, that has been allowed to remain to the extreme time of ninety-six hours, would not be a health hazard, because, first—

Mr. Schaefer: May I have the last part of that question read?

(The portion of the question referred to was thereupon read by the reporter.)

The Witness: A. (Continuing.) —the ink—

Mr. Schaefer: I submit that the question asked what the effect would be on the person who consumes that milk. I do not want to interrupt, but the doctor's answer so far indicates that he is not answering the particular question which was asked.

The Master: Let us have the question again.

(The question was read as above recorded.)

The Master: Off the record—

(Discussion off the record.)

The Master: Objection overruled. Go ahead, doctor.

The Witness: A. (Continuing.) —because, first, the pigment contained in these various inks may be lead, 2069 manganese or cobalt, and they are in a base of a gum and linseed oil.

These pigments are heated to a high temperature, to make the ink. The ink as printed upon these cartons forms a film, due to the oxidation of the linseed oil, or a lead linolate, which is difficultly soluble in water, milk and dilute acids.

In order to separate that lead for a chemical analysis, it is necessary to ash it or oxidize it with strong acids, like nitric acid.

Secondly, in addition to the film which is formed on these inks due to the oxidation of the linseed oil, we have a covering of paraffin.

Mr. Schaefer: Now, I object to that, if the Master please. I would have objected to that question before, except when the questioner framed the question he very carefully excluded the paraffin covering of the container.

The Master: Yes.

Mr. Schaefer: However, I will withdraw that objection.

The Master: All right. Read as far as the witness got.

(The witness' answer was read as above recorded.)

2070 The Master: Continue.

The Witness: A. (Continuing.) That was so described in the hypothetical container, such as I have to consider here. That gives a double coating to this ink. The paraffin is insoluble in milk. Therefore, the milk would not get to the lead compound if it were soluble. So you have two barriers for this lead compound getting into the

milk, which would eliminate your ink as a lead hazard or as a cause for lead intoxication.

The Master: Have you completed your answer?

The Witness: A. Yes, sir.

Mr. Rall: Q. Assuming that at the place where this ink is present the paraffin coating, for some reason, is not present. Does that alter your opinion as to whether that presents a health hazard?

A. You would still have your film of oxide of linseed oil present, which is insoluble in the milk. It would not release the lead.

The Master: Off the record.

(Discussion off the record.)

Mr. Rall: Q. The Master suggests that if the first film is not present, which you referred to as the result of oxidation—

A. It would always be present.

2071 The Master: Q. Assume that for some reason it had been taken off.

A. When it dries there would have to be some of it there, because it is just like the paint on a wall or the outside wall of your home, that has got linseed oil, turpentine and the pigment in it, which is subjected to the weather, the rain, the elements, snow, heat, cold and ice, which is the greatest factor for removing that pigment. In other words, that pigment will stay until the linseed oil has become disintegrated by the ice and sleet.

Q. Mr. Rall started to ask you, assuming there were not present either one of those two films, is there enough ink constituting that offset or is there enough lead there present to present a health hazard, which lead might get into the milk?

A. If it was in an insoluble form, no, as the maximum amount of offset as I see it in that exhibit here would not present a health hazard.

Mr. Schaefer: Will you read the Master's question?

(The record was read as above recorded.)

The Witness: The answer was: "No."

The Master: Q. That is to say, the amount of lead in the ink would not be soluble?

A. It would not be soluble in milk, no, sir. But 2072 you have that double protection here. You have the oxidation envelope of lead, because this ink is manufactured with heat applied to the gums and the linseed oil.

Q. Let us go one point further now. Let us assume there is not a film of paraffin, there is not the oxidized film, and that the lead in the ink is not in insoluble form, but is soluble; is there enough lead present in that ink constituting this offset to present a health hazard?

A. In my opinion, no.

Mr. Rall: Q. And is that opinion based upon your knowledge of chemistry, your practice of medicine and your study of toxicology?

A. Yes, sir.

Q. In the hypothetical carton and the circumstances surrounding it which I gave, do you have an opinion whether there is any hazard to the public health involved?

A. From the milk contained in any carton similar to what I have been presented, no, sir; I cannot see any health hazard.

Q. In the case of lead poisoning, are there any aspects of it which are peculiar to infants?

2073 A. Yes. Infants absorb the lead and it is fixed in the cranial bones, the epiphyseal or long bones of the infants, and that can be demonstrated by the X-ray.

The Master: Q. What are the epiphyseal bones?

A. That is where the bone is not ossified. Our bones are not completely ossified until we have reached the age of eighteen, and then there is a calcium deposition at the ends of the bones.

Mr. Rall: Q. In giving your opinion and the reasons therefore, have you considered the health hazard as it related to infants as well as to adults?

A. Yes, sir.

Q. And that under the hypothesis given it is your opinion that there is no health problem either as to adults or infants, is that correct?

A. Yes. By the administration of milk you are giving one of the best antidotes that we know in toxicology for lead intoxication, because of the calcium in this milk. It causes a deposition of the lead in the bones. In industrial plants, in which I have been a consultant, I give them milk to drink, where they are exposed to high concentrations of lead during the mixing of lead paints, with the end results that we have not had lead intoxication in those plants
2074 where they are taking milk.

Q. At the other end of the life scale, take a senile

person, would your opinion that no health hazard is presented apply equally to such a person?

A. Oh, yes. They are still drinking milk, which, as I said, is one of our best antidotes, and there would not be enough coming off of this offset to be a health hazard.

Q. Are familiar with paraffin, pure refined paraffin, meaning U. S. Pharmacopoeia Standard 11, with an American melting point of approximately 125 to 127 degrees Fahrenheit?

A. I have used paraffin in the laboratory. I have seen it used at home, in the capping of jells and jams. It has been used in my home for a good many years in that manner. I have used large quantities of that same sort of paraffin in cutting sections of human organs, when I was interested in pathology.

Q. I believe the last edition of the U. S. Pharmacopoeia is 11?

A. Yes.

Q. And my hypothetical question I referred to U. S. Pharmacopoeia 12. Without objection may that be changed?

2075 The Master: Q. Does that make any difference in your opinion, doctor?

A. No, because it will be 12 now instead of 11. The new one is under revision at the present time.

Mr. Rall: Q. Do you have an opinion as to whether the taking of paraffin in quantities of from 1 milligram to 107 milligrams, of the kind described, through the mouth, is harmful to health?

Mr. Schaefer: I object to that, if the Master please, because the question is not proper rebuttal and the answer will not be proper rebuttal. The only question that was asked with respect to that subject dealt with infants under the age of one year. No question was asked with reference to adults. So far as infants are concerned, Doctor McNally's qualifications have not yet been demonstrated.

Mr. Rall: So far as the general question of whether it must be limited to infants under one year is concerned, Doctor Arnold referred to what he called the ingesting of paraffin. No, I am wrong. He was talking about the ingesting of the milk. He talked about the presence of paraffin being an adulterant and referred to the fact that

while it might not be harmful to adults, upon which,
2076 as I recall, he expressed no opinion, or at least no

adverse opinion, nevertheless he did refer to adults, and I think I am entitled to show it both generally and specifically.

The Master: You have not qualified this witness, have you, on that? You qualified him as an expert on poisons.

Mr. Rall: Well, I will withdraw the question and ask him this:

Q. Doctor, have you an opinion as to whether paraffin of the kind described is a poison?

A. It is not.

The Master: Q. Either to adults or infants?

A. To anyone.

Mr. Rall: Q. Is there anything about its chemistry which in your opinion is harmful to human health, either adult or infant?

A. It is not.

Q. Is there anything about its physical properties, in the quantities described, from 1 milligram to 107 milligrams, which if taken through the mouth, either by an infant or by an adult, is harmful to health?

Mr. Schaefer: I object to that, on the ground the witness is not qualified to express an opinion on that question.

2077 The Master: What other qualification do you want him to have?

Mr. Schaefer: What does the doctor know about the health of infants?

The Master: Do you want to qualify him along those lines, Mr. Rall?

Mr. Rall: Yes, I will go a little further.

Q. What, if any experience have you had in the use of paraffin or paraffin products in connection with your medical and professional work?

A. I have never given paraffin internally as medicine. I have given mineral oil, which is a higher grade of mineral product than paraffin. I have never given it internally and it is not given internally in the United States Pharmacopoeia.

Q. What has been your experience with the products—do you say mineral oil?

A. Yes.

Q. What has been your experience in that regard?

A. I have given lots of mineral oil as a laxative. It is not digestible. Neither is the paraffin digestible. It passes through unchanged in the stool.

Q. If the taking of paraffin were to cause disturbances to the human body, would that be the type of case that 2078 would come to you professionally, in connection with your consulting work?

A. Yes. If paraffin had been considered by physicians as an irritant or some firm was manufacturing a product which was encased in a paraffin-coated receptacle, I would be one of the people in the United States to be consulted along that particular line.

Q. Are you familiar with medical literature generally?

A. I am.

Q. Do you know of any instance, either in the literature or from your own experience or from consultation with other physicians, or from any source, when bodily disturbances of any kind were attributed to or suspected to be caused by the taking of paraffin, the accidental or other taking of paraffin through the mouth by any individual?

A. I do not. I have chewed paraffin. I have seen numbers of other people who have chewed paraffin half a day, day after day, and undoubtedly swallowed particles that were more than 100 milligrams, without any ill effects.

The Master: Q. Would you recommend its presence in milk?

A. It would be a foreign body in milk. It would 2079 not conform to the Pure Food Act, if it was there to add bulk or weight to milk. In a receptacle like this, the paraffin that would come off would be extremely small. If I should crush one of these corners, the particles under the microscope would probably be not larger than six times the size of a blood cell, which would not hurt anybody in swallowing it. There is no place on this carton where one piece would come off of the size of a 100 milligrams.

Q. You would not find any objection to milk because it contained paraffin?

A. In what quantities? It would not be harmful to the individual, no, sir.

Q. In any quantity would you find any objection to milk, if it contained paraffin?

A. If the paraffin were of the size of peanuts or marbles, I would not want to drink milk containing paraffin like that, no, sir, but it would not be ascertained in milk any more than the chocolate would in chocolate milk.

Q. Let us assume a little different case. Let us assume you have a person with colitis or with diarrhea, a person with a sensitive bowel, either adult or infant. Would you say that the presence of paraffin in the milk might present a health problem?

2080 A. If it was in large particles, several grains in size, and a person had an inflamed bowel, it might act as an irritant, but such particles I cannot conceive of coming off from a parcel or package such as has been exhibited to me in this court room.

Does that answer your question?

Mr. Rall: Q. Doctor, I forgot one question on the matter of your experience. Are you a member or have you been a member of any professional societies or organizations?

A. Yes. I am a member of the American Chemical Society, Chicago Chemical Society, American Public Health Association, Illinois Medical Society, Chicago Medical Society, American Medical Association. I guess that is all.

Q. In what types of publications have your articles that you referred to been printed?

A. They appeared in Journals of Public Health, American Medical Journal. They appeared in Medical Record, Michigan State Medical Society Journal, Indiana State Medical Journal, the Journal of Industrial Medicine.

Q. You were requested to appear here by Mr. Fred Gariepy, is that correct?

A. Yes.

2081 Q. You never saw Mr. Gariepy or me before today?

A. No, sir.

Q. And you have conferred with me before your testimony?

A. Yes, sir.

Q. And you expect to be compensated for your consultation and for your appearance here?

A. I do.

Mr. Rall: You may cross examine.

The Master: There is one more question.

Q. I mentioned the case of an irritated or sensitive bowel. Let us take the case of a diseased gall bladder or liver or some other organ which has to do with digestion. Would you say the presence of paraffin would make any difference?

A. Absolutely not, because the paraffin would be elimi-

nated by the gastro-intestinal tract. Not being soluble, it would not get to the liver, which is the filter of the human body, nor to the gall bladder. It would not cause an irritation in either instance.

Q. Would it impose any work upon the activities of those organs?

A. No, sir, it would not, because nothing is needed to digest this piece of paraffin. It is not digested by the various enzymes and juices that are present in the stomach and the gastro-intestinal tract, including the duodenum, ilium and colon. Those are just subdivisions of the gastro-intestinal tract. With your stomach there you have a complete gastro-intestinal tract. Starting with your mouth and going to your stomach and running down to the rectum, you have a complete G I tract.

Q. Does raw milk contain any bacteria?

A. Yes, sir, it does. I have seen it in the city of Chicago, when I was in the Health Department, contain many millions of organisms.

Q. Would you say that bacteria from the milk adhere to particles of paraffin in the milk?

A. If that particle of paraffin contained protein or other substances found in the milk, yes; it could grow around the protein, just the same as it could grow on the edge of a bottle.

Q. Let us assume that the bacteria are already grown. Do you think—

A. Paraffin would be an un-nutrient medium and therefore would not offer a suitable food for bacteria. In other words, bacteria would not grow readily on paraffin, unless this paraffin was surrounded by food elements which are contained in milk, like lactose, protein, fats, salts. Milk affords a suitable medium for bacteria to grow, at a suitable temperature.

Q. Let us assume this: The bacteria do not grow as you describe, let us say, but may, nevertheless be in the paraffin.

A. Well, they could not be in the paraffin, unless the paraffin had been rolled around in some putrid material, because the bacteria would not penetrate the paraffin.

Q. You say the bacteria do not penetrate paraffin?

A. It would not penetrate paraffin. It would not grow in it. It has no nutrient in it at all.

Q. Could not bacteria go through the paraffin?

A. No, it could not.

Q. From the milk into the wall of the container and back again?

A. No. You look at your home, as the Mrs. cans jams and jellies, and you have an observation to show why paraffin is used for the cappings of these bottles, because they prevent bacteria and yeasts entering the jams and jellies. They can light on the outside and they will never go through.

Q. Your opinion then is that bacteria do not penetrate paraffin?

A. That is right, they do not penetrate paraffin.

Q. And if there are any bacteria in the wall of 2084 these paper containers, they cannot get into the milk through the paraffin?

A. That is right.

Q. And vice versa—

A. They would not get out into the—

Q. And vice versa, the bacteria from the milk could not get into the wall of the container?

A. Unless there was a break in the paraffin. Then they could.

Mr. Rall: Q. In the hypothetical question, Plaintiff's Exhibit 91 was referred to. I want you to assume for the purpose of this next question that the offset ink on the inside of the hypothetical carton was even greater in amount than that which you see on Plaintiff's Exhibit 91, considering the amount of ink on the outside of the carton and assuming that the inside of the carton was offset with even more of the same type of ink than appears on it. Would that change your opinion as to whether or not the presence of that offset presented a health hazard?

A. No, it would not.

Q. Why?

A. Because, for the reasons stated, you have an insoluble compound here, due to the oxidation of the 2085 linseed oil and the formation of an insoluble lead compound, or, if it happens to be manganese, the same applies, which is insoluble in water and which is insoluble in milk.

Q. Would the quantity of lead, assuming as much as 35 per cent of lead in the ink, which could, in your opinion, be offset upon the inside of such a carton, would such an amount, in your opinion, be sufficient to cause lead intoxication?

A. It would not.

Mr. Schaefer: I object to that, for the reason that the witness is not qualified to express an opinion as to how great an offset there may be. The question calls for the witness' opinion on that point.

The Master: I will let it stand. You may cross examine. It will go to the weight of his testimony.

Mr. Rall: Without putting all of these things in the record, I am frank to say that I want the worst case of offset that counsel can find or describe. I am unable to know exactly how to describe it in words.

The Master: I would like to ask a question that may perhaps throw some light on the amount of offset.

Mr. Rall: Yes.

The Master: Q. As I understand you, doctor, 2086 the lead in the ink would not be soluble in the milk for two reasons. One is that you have an oxidation film and the other is that you have a paraffin film.

A. That is right.

Q. And you say that ink when it dries just takes this oxidation film?

A. It forms a film, due to the oxidation of the linseed oil and the ester gums which might be in this particular preparation.

Q. If that is true as to the offset, wouldn't it also be true as to the face of these containers, where you have the full printing?

A. Yes. I would be willing to drink milk day after day with the ink on the inside of the package and have that milk seventy-two hours old.

Q. That is what I am getting at.

A. Yes, sir. I would absolutely not be afraid to drink any milk in a container like that.

The Master: Then it does not make any difference, Mr. Rall, how heavy the offset is.

Mr. Rall: In my humble way that is what I was trying to describe, and I did not do a very good job of it.

The Master: In other words, the doctor says it does not make any difference whether you have merely or whether you have the full printing on the inside of the container. 2087

Mr. Rall: Yes.

Q. Now, doctor, in answer to the first hypothetical question you stated that milk kept under the conditions described in the hypothetical question for ninety-six hours,

did not, in your opinion, present a health hazard. Would that also be true—

A. As to lead.

Q. As to lead, yes.

A. Because in ninety-six hours the bacterial count is several million.

Q. But I was referring only to the lead.

A. Kept in an ice box, then it becomes a health hazard, because of the increase in the bacterial count.

Q. But what relationship does the time have in the answer to the question as concerns the possibility of lead poisoning?

A. With this film, nothing.

Q. So your answer was an answer to what you consider an extreme case?

A. Yes.

Q. And would include and cover—

A. With the one proviso that after ninety-six hours there are no defects in this paraffin that would loosen the paper. Suppose this was folded inside. If it would loosen all of this and the person would get the lead into his system mechanically, then he might show some signs of intoxication, if he got all of the lead from this paint at one dose. We do not believe that would be possible, or I do not.

The Master: May I ask him another question here?

Mr. Rall: That is all right. He is here for that purpose, Master.

The Master: Q. You say that the paraffin does not permit the passage of bacteria from the milk into the wall of the container, that it prevents it?

A. Yes, sir.

Q. And it does not, by the same token, permit the passage of any moisture or any of the milk into the wall of the container, is that correct?

A. That is right. It protects it.

Q. Then you would say that the wall of the container is non-absorbent?

A. It is rendered impervious by the coating of paraffin. That is the purpose of it.

Q. That is your opinion?

A. Yes. Any defects in the paraffin, however, would allow moisture to get through and would undermine that paraffin.

Q. Does this ink have any odor?

2089 A. When it is being made, yes, it would have an odor, but there is very little odor to any ink, unless it has got a preservative like phenol. Take your writing fluid, like the fluid the court reporter is using here; that probably has got phenol in it, to preserve it. That type of ink does not require the skill of manufacture that this type does. That kind of ink will run. I can put my hand on this and it will make a splurge. I can rub this and there will be no splurge, because there is a film on it. That, under the microscope, looks like a thousand little dots.

Q. You mean the court reporter's ink?

A. Yes, the court reporter's ink. If I put it under a microscope, as I have done for many years, it looks like millions of little dots. This will not have that appearance.

Q. Referring to the ink on the container?

A. Yes.

Q. This ink on the container you say has no smell whatever?

A. Yes, there is an odor. When you have these cartons piled up in six foot piles in the printing shop, there is somewhat of an odor, due to the pigments, but as it is here, there is no odor at all.

2090 Q. Would you say that if a container is freshly printed and shortly thereafter sealed and made into a form of container such as is shown here, and if the printing were on the inside of such a container, would you say that some of the ink odor might get into the milk?

A. No, that is very small. The only way you smell that ink odor is where there are big piles of these lithographs on the floor of the printing plant. You can take a large pack, like he has at hand there, and there would be no odor at all. But, freshly printed, yes, there is an odor.

Q. Have you performed any experiments to ascertain whether paraffin will permit the passage of bacteria?

A. Well, I have not performed any experiments to show that paraffin will permit the passage of bacteria through a package like this, no, but I know that is why it is used, because it does not permit the passage of yeasts and bacteria. That is common household knowledge. That is why that is used.

Q. Is that also your medical knowledge?

A. Oh, yes. It gives a coating that bacteria will not penetrate.

The Master: Anything more, Mr. Ball?

Mr. Rall: No.
2091 The Master: We will have a recess of a few minutes, then.

Mr. Schaefer: This is off the record. It is now 12:00 o'clock noon.

(Discussion off the record.)

The Master: We will recess until 1:30, in this room.

(Whereupon a recess was taken to 1:30 o'clock p. m. of the same day, Thursday, October 26, 1939.)

2092

• • • (Caption) • • •

Thursday, October 26, 1939,
1:30 o'clock P. M.

Met pursuant to recess.

Present: Same as before.

The Master: You may proceed.

Mr. Rall: While we are waiting for the witness, there are some exhibits which we want to offer that we might consider. Mr. Horan and I went over the list of exhibits yesterday.

Plaintiff's Exhibit 42, being a picture of a soaker bottle washer, which was identified at Page 487 of the transcript, simply to show the type of machine the witness was discussing, was not offered in evidence, and we now desire to offer it.

Mr. Schaefer: I have no objection.

The Master: It may be received.

2093 (Said photograph of soaker bottle washer so offered and received in evidence, was marked PLAINTIFF'S EXHIBIT NO. 42 and is attached hereto and made a part hereof.)

Mr. Rall: Plaintiff's Exhibit 47-A was included in a general offer, identified at Page 946 of the transcript, but was omitted in the list of exhibits received at Page 1025. We re-offer that, to correct the record.

The Master: Any objection?

Mr. Schaefer: No.

The Master: It may be received.

(Said document so offered and received in evidence, was marked PLAINTIFF'S EXHIBIT 47-A and is attached hereto and made a part hereof.)

Mr. Rall: Plaintiff's Exhibit 57, referred to by Doctor Prucha, was identified at Page 988 of the transcript, but was erroneously omitted in the offer of the exhibits at Page 1025 of the transcript. We would like to offer that at this time.

The Master: Any objection?

Mr. Schaefer: No objection.

The Master: It may be received.

(Said document so offered and received in evidence, was marked PLAINTIFF'S EXHIBIT 57, and is attached hereto and made a part hereof.)

2094 Mr. Rall: Plaintiff's Exhibit 58 was identified at Page 990 of the transcript, but was erroneously omitted from the offer of exhibits on Page 1025 of the transcript. We desire to offer that.

The Master: Any objection?

Mr. Schaefer: No.

The Master: It may be received.

(Said document so offered and received in evidence, was marked PLAINTIFF'S EXHIBIT 58, and is attached hereto and made a part hereof.)

Mr. Rall: Apparently there was no exhibit described as Plaintiff's Exhibit 82, but the transcript at page 1369, in connection with the offer of exhibits, refers to Exhibit 82, so it will be understood that the exhibits should have ended at 81 in that offer, instead of 82.

Mr. Schaefer: Is there an exhibit 82 in the record at all?

Mr. Rall: There is not.

Plaintiff's Exhibit 83, identified on cross-examination by Doctor Lloyd Arnold, is a letter from Doctor Arnold to George D. Scott, dated December 17, 1937. We offer that in evidence. It was identified at page 1877 of the transcript.

The Master: Any objection to that?

2095 Mr. Schaefer: No, sir.

The Master: It may be received.

(Said letter from Doctor Lloyd Arnold to George D. Scott, dated December 17, 1937, so offered and received in evidence, was marked PLAINTIFF'S EXHIBIT 83, and is attached hereto and made a part hereof.)

Mr. Rall: Plaintiff's Exhibit 84 is a two-page original letter of Doctor Lloyd Arnold to Mr. George Scott, dated December 9th, 1937, a special delivery envelope, and a purported carbon copy of a letter from Doctor Arnold to Doctor Thomas Parran, Surgeon-General, dated December

9th, 1937, identified by Doctor Arnold on his cross-examination.

The Master: Any objection?

Mr. Schaefer: No objection.

The Master: It may be received.

(Said letter from Doctor Lloyd Arnold to Mr. George Scott, dated December 9, 1937, special delivery envelope and carbon copy of letter from Doctor Arnold to Doctor Thomas Parran, dated December 9, 1937, so offered and received in evidence, were marked PLAINTIFF'S EXHIBIT 84 and are attached hereto and made a part hereof.)

2096 Mr. Rall: Plaintiff's Exhibit 85, a one ~~page~~ letter, dated November 12, 1937, from A. W. Fuchs, Senior Sanitary Engineer, to S. E. Dean, Jr., was identified by Doctor Arnold on cross-examination, at page 1888. I now offer it.

The Master: It may be received.

(Said letter dated November 12, 1937, from A. W. Fuchs to S. E. Dean, so offered and received in evidence, was marked PLAINTIFF'S EXHIBIT 85, and is attached hereto and made a part hereof.)

Mr. Rall: Plaintiff's Exhibit 86 is a photostat of a letter dated November 26, 1937, from Leslie C. Frank, Senior Sanitary Engineer, to S. E. Dean, Jr., identified at Page 1888, is offered in evidence.

The Master: Any objection?

Mr. Schaefer: No objection.

The Master: It may be received.

(Said photostat of letter, dated November 26, 1937, from Leslie C. Frank to S. E. Dean, so offered and received in evidence, was marked PLAINTIFF'S EXHIBIT 86 and is attached hereto and made a part hereof.)

Mr. Rall: Plaintiff's Exhibit 87 is a one page letter dated February 7th, 1938, from Doctor Lloyd Arnold 2097 to George D. Scott, identified at page 1951 of the transcript.

The Master: Any objection?

Mr. Schaefer: No objection.

The Master: It may be received.

(Said letter dated February 7, 1938, from Doctor Lloyd Arnold to George D. Scott, so offered and received in evidence, was marked PLAINTIFF'S EXHIBIT 87 and is attached hereto and made a part hereof.)

Mr. Rall: Plaintiff's Exhibit 88 is not offered.

Plaintiff's Exhibit 89 is a copy of a letter dated October

6th, 1939, from Walter N. Dashiell, Associate Public Health Engineer, United States Public Health Service, to Doctor Herman N. Bundensen, to which he attached four type-written sheets, dated October 7th, 1939, entitled, "Section 10 as it will appear in the 1939 printed Public Health Service Milk Code," said four sheets being identical with the text of pages 2, 3, 4, and 5 of Defendants' Exhibit 29, which is already in evidence. By agreement, the four pages of this exhibit already included in the record as part of Defendants' Exhibit 29 are omitted.

Mr. Schaefer: That is agreeable.

2098 The Master: Exhibit 89 is received.

(Said letter dated October 6th, 1939, from Walter N. Dashiell to Doctor Herman N. Bundesen, so offered and received in evidence, was marked PLAINTIFF'S EXHIBIT NO. 89 and is attached hereto and made a part hereof.)

Mr. Schaefer: I have two documents which I want to offer, and that will straighten out this portion of the record and we will have it all in one place.

I want to offer Defendants' Exhibit 7, which was identified by Doctor Prucha while he was testifying and which is a table showing the reports of certain experiments performed by him. It was overlooked at the time the other exhibits identified on that day were offered in evidence.

Mr. Rall: No objection.

The Master: It may be received.

(Said table identified by Doctor Prucha so offered and received in evidence, was marked DEFENDANTS' EXHIBIT NO. 7, and is attached hereto and made a part hereof.)

Mr. Schaefer: The other document which I would like to take up is Plaintiff's Exhibit 88, which was identified at the last hearing, and referred to by counsel for the plaintiff in examining certain of the witnesses who testified on that day. That document was a report of certain proceedings taken by the Board of Health on May 15th, 1939. I have here an excerpt from the minutes of the Board of Health on that day, which show the action of the Board with respect to that matter, and I would like to have that marked for identification and received in evidence as Defendants' Exhibit 31. The plaintiff has not seen fit to offer its Exhibit 88.

The Master: Do you object to this, Mr. Rall?

Mr. Gariepy: Yes.

Mr. Rall: Unless we can get an agreement as to who was present, so we can make the record in that respect complete.

The Master: You have already testified to this, haven't you, as to who was present?

Mr. Rall: No. Doctor Bundesen referred to the minutes, but did not say who was present.

Mr. Gariepy: Let us find out who was there.

The Master: What is this supposed to be?

Mr. Schaefer: That is action taken by the Board of Health in respect to—

The Master: What is it, minutes or what?

Mr. Schaefer: Those are minutes of the Board of Health, yes, sir. That is what I stated at the out-2100 set. These are minutes of the Board of Health of a meeting held on that day.

Mr. Rall: Our objection is that it is not complete, but that may be obviated by his later information.

Mr. Gariepy: Showing who was present, to make it complete.

The Master: Subject to putting in the facts as to who were present—

Mr. Rall: And the vote on the resolution.

The Master: (Continuing.) —and the vote on the resolution, the document may be received as Defendants' Exhibit 31.

(Said excerpts of minutes of Board of Health meeting, held on May 15, 1939, so offered and received in evidence, was marked DEFENDANTS' EXHIBIT 31, and is attached hereto and made a part hereof.)

Mr. Schaefer: It is stipulated that at the meeting of the Board of Health on May 15th, 1939, all of the members of the Board of Health were present, except Doctor Bundesen, and all present voted in favor of the resolution.

The Master: How about these cartons that were identified this morning? Do you want to put those in?

2101 Mr. Rall: We will offer in evidence Plaintiff's Exhibit 91 the green printed carton referred to in Doctor McNally's testimony.

The Master: Is that the only one?

Mr. Rall: Yes.

The Master: It may be received.

(Said green printed carton so offered and received in evidence, was marked PLAINTIFF'S EXHIBIT 91, and is attached hereto and made a part hereof.)

Mr. Rall: Mr. Reporter, will you mark that Plaintiff's Exhibit 92 for identification?

(The document referred to was thereupon marked by the reporter Plaintiff's Exhibit No. 92, for identification.)

Mr. Rall: I offer in evidence Plaintiff's Exhibit 92, an original one page letter, dated September 16, 1939, from A. W. Fuchs to George Scott.

The Master: A. W. Fuchs is of the United States Public Health Service?

Mr. Rall: Yes.

The Master: And Mr. Scott is sales manager of the Ex-Cell-O Corporation, the Pure-Pak division?

Mr. Rall: Right.

The Master: It may be received.

2102 (Said letter from A. W. Fuchs to George Scott, dated September 16, 1939, so offered and received in evidence, was marked PLAINTIFF'S EXHIBIT 92 and is attached hereto and made a part hereof.)

The Master: Are you ready for the witness now?

Mr. Schaefer: Yes.

Mr. Rall: There is one question that I would like to ask before the cross examination.

WILLIAM D. McNALLY, a witness called by the Plaintiff, in rebuttal, having been heretofore duly sworn, resumed the stand and testified further as follows:

Direct Examination (Continued) by Mr. Rall.

Q. We referred this morning, doctor, to milligrams of paraffin. Can you give the Master some equivalent as to describing what a milligram of paraffin is?

A. Yes, I can tell you what a grain is in milligrams and give the English picture of how the grain and milligram came into existence.

The grain is the average weight of a well dried kernel of wheat. That was our early English system of designating weights. As this measure was transposed into the metric system or the French system, we then began to use grams and fractions of a gram. A gram is 15.45 grains. A grain is .0645 grams. So if you can picture a well dried kernel of wheat, you have the picture of a grain which is 64.5 milligrams.

Q. Is that the measurement by weight?

A. That is the measurement by weight, given in the United States Pharmacopoeia, National Formulary, United States Dispensary, and a recognized measure used by the pharmacists and the practicing physician.

Q. About how large would a piece of paraffin of 107 milligrams be?

A. It would be a little larger than a grain of wheat.

Mr. Rall: That is all.

Cross-Examination by Mr. Schaefer.

Q. Doctor, what do you mean by a hazard to health?

A. Anything that would cause injury to that particular individual's well being.

Q. Is lead taken into the human body through the mouth beneficial to health?

A. No, sir, it is not. In small quantities it would have no effect.

2104 Q. Just answer the questions that I ask you, doctor. You have testified a good deal and you understand. So just answer the questions that are put to you. Does milk contain lead?

A. Yes, sir, it does.

Q. Does milk, fresh fluid milk as it comes from the cow, contain lead?

A. It contains lead as I have examined it from glass containers. I have never examined it as it came from the udder of a cow and put into pyrex bottles.

Q. Pyrex what?

A. Pyrex bottles, which are lead-free. They are glass containers which are lead-free.

Q. How much lead does milk contain?

A. That varies.

Q. With what?

A. With the length of time that the milk has been in that container, with the type of food that that—

Q. What container, doctor?

A. Glass container.

Q. Are you saying that the lead gets into the milk from the glass container?

A. I believe so, yes, sir. I can take water and put it in a glass bottle, distilled water, and that water after a number of days shows traces of lead.

2105 Q. What have you done with your glass bottle before you put the water in it?

A. It has been washed out with distilled water first.

Q. Rinsed out with distilled water?

A. Rinsed out with distilled water, yes, sir.

Q. That is the only treatment that you gave it?

A. Yes, that is all.

Q. Where was it before it was rinsed out?

A. I couldn't tell you that. It was probably around the laboratory for weeks or so before it was rinsed out or it may have been one that was just used a day or two before, with milk contained in it and then used for this experiment.

Q. How would lead get on to the glass milk bottle?

A. Lead is a substance that is found in all cheaper forms of commercial glass. It is not found in the pyrex or chemical glass. It is found in glazes, in chemical work, in enameled ware.

Q. Is glass porous, doctor?

A. No, it is not, in the usual sense of the word, of course.

Q. Would you explain how the lead that is in the glass gets inside of—

A. That is a matter of solvent action. The glass 2106 is slightly alkali.

Q. Wait until I finish, doctor, please. Will you read the question so far, Mr. Golding?

(Mr. Schaefer's last question was read as recorded.)

Mr. Schaefer: Q. (Continuing.) —gets into the liquid which is placed in the glass bottle?

A. The glass as it is fabricated into bottles contains lead, and water or other things take up this lead in traces of definite amounts that we can estimate in milligrams.

Q. Now, after the bottle has once been rinsed, will the liquid put into the bottle continue to take up lead from the bottle?

A. Yes, it will continue to take up lead.

Q. Where will that lead come from?

A. It comes from the inside of the coating of the glass. There is a little silicate formed there.

Q. How does it get out?

A. It is a sodium silicate that breaks up and liberates the lead. Probably some lead silicate with the sodium silicate.

Q. What do you mean by a lead silicate?

A. The lead is there. We put lead in glass. We put manganese in glass.

2107 Q. No, I want to know what a lead silicate is.

A. It forms with the silicon oxide when it fuses.

Q. What does a lead silicate look like, doctor?

A. White.

Q. Is it visible to the naked eye?

A. In the form of the amount there, it is not visible. It is transparent.

Q. It is transparent?

A. It is transparent. It is just like your glass, part of the structure of that glass. Sodium silicate is water-white also and in thin portions it would not be discernible to the eye, until it is dry, but if it is fused into glass you would not notice it at all.

Q. What tests have you employed to determine the presence of lead in glass bottles?

A. The Fairhall method.

Q. What is that?

A. And I have used the dithizone method.

Q. Describe that method.

A. Fairhall is the method I have used in reporting on lead cases in court.

Q. Will you describe that method?

A. Yes, I will be glad to go into it in detail.

Mr. Rall: How do you spell the other method?

2108 The Witness: The other method is the dithizone method. That is the colormetric method.

We will start with 1000 cc. of water or urine. Let us start with urine. Make it more difficult. To this 1000 cc. of urine in a silica dish, fused silica dish, we put 15 cc. of nitric acid. Evaporate this to dryness and ash it.

The nitric acid oxidizes the organic matter in the urea and sometimes goes off with a flash, due to sudden combustion of the organic matter.

Then you take it up with distilled water, after it is cooled. Add hydrochloric acid and tartaric acid, so if there are phosphates present the phosphates will not interfere with the lead determination. It will break up any calcium phosphates that might be present.

The acid is completely neutralized, after it has been filtered from this incineration process. It is filtered into an Erlenmeyer flask and neutralized with sodium hydroxide. To it there is added an indicator, such as methyl orange.

We now pass in hydrogen sulphide, this gas being obtained from sulphide of iron, to which 1 to 7 sulphuric acid is added. That is dilute sulphuric acid.

2109 Before it is passed into this solution, while we are trying to find out whether lead is present, it is washed through water and passed into the unknown solution.

The lead sulphide will precipitate. It may be in very small quantities so that you can hardly see it. Any iron that is there will also be taken down as a sulphide.

This is filtered off through a filter paper, washed with warm water, and dissolved and washed through into another Erlenmeyer, by means of nitric acid, 1 to 1.

The nitric acid is now boiled, to free this second filtrate from hydrogen sulphide.

It is then taken up with more water, usually 50 cc., neutralized again with sodium hydroxide, until it is alkaline.

It is then acidified with strong acetic acid, and at this point one-half cc. of a 10 per cent potassium chromate, normal chromate, is added.

This solution is now boiled for several minutes, covered and allowed to stand over night, so that the lead will have an opportunity to be precipitated as lead chromate, a difficultly soluble substance.

2110 This is now filtered off through a very small filter paper, washed with warm water, and when found to be free from chromate by using dithizone solution we add hydrochloric acid, 5 to 10 cc. of 1 and 1 strength, washing the material into a third clean Erlenmeyer flask.

To this is added 1 cc. of a 20 per cent potassium iodide solution, also a few drops of hydrochloric acid. In the presence of lead a blue color will be obtained.

This is now titrated with an N/200 normal solution of sodium thiosulphate, and a blank is run using all of these re-agents as enumerated above, and the blank is subtracted from any titration that we may obtain in the unknown.

The Master: Off the record, please.

(Discussion off the record.)

Mr. Schaefer: Q. When you get through, what determination do you have?

A. The determination of the lead.

Q. In what?

A. In that sample of water.

Q. In that sample of urine you started out with.

The Master: Just a minute.

Mr. Schaefer: Will you read the question that I 2111 asked the witness? It is quite aways back.

(The record was read as follows:

"Q. What tests have you employed to determine the presence of lead in glass bottles?

"A. The Fairhall method.

"Q. What is that?

"A. And I have used the dithizone method.

"Q. Will you describe that method?")

Mr. Schaefer: Now I move the answer be stricken.

The Master: He is telling you what he did.

Mr. Schaefer: That isn't what I asked him. What I am asking the witness is how he determined the presence of lead in glass bottles. He is telling me how he determines the presence of lead in urine.

The Master: Do you have any different answer than what you stated, doctor?

The Witness: I stated what I thought was a proper answer. If the attorney, young attorney here, will just clarify what he wants—

Mr. Schaefer: Let us just cut that out. If the Master please, I resent that.

The Master: You don't have to tell us whether the attorney is young or old. You can answer the question.

The Witness: He had it read to him, sir. Why have it repeated?

2112 The Master: You have no right as a witness to chide or take the lawyer to task. Now, you can just answer the question. What is the question now? You asked him how he determined the presence of lead in glass bottles?

Mr. Schaefer: That is right.

The Master: Now, is the answer that you gave the answer you would give to that question?

The Witness: The answer is exactly the same. The procedure would be the same.

Mr. Schaefer: Q. Now, applying that—

A: I have not finished yet. Do you want me to finish it?

Q. Applying that procedure, doctor, what you determine is the lead content in the material which is placed in the bottle, is that correct?

Mr. Rall: I am going to object. If the witness is not permitted to finish the answer to the question, which was

for him to describe the method, counsel ought not to be permitted to proceed, unless he withdraws the whole question.

The Master: Well, let the record stand as it is made now. What is the question now?

(Mr. Schaefer's last question was read as above recorded.)

2113 The Witness: A. That is right.

Mr. Schaefer: Q. Now, what I want to know, doctor, is how you determine the lead which you have described as being contributed from the glass bottle to the liquid placed in that bottle.

A. Well, the same method, using the same chemical procedure.

Q. You have said that by that procedure you determine the amount of lead in the material placed in the bottle?

A. Yes.

Q. Now, how do you determine what percentage of that lead came from the bottle, if any?

A. By taking this same unknown and evaporating it in a platinum dish or in a silica dish which is free from lead, and running that as a blank.

Q. When did you perform such tests with respect to glass milk bottles?

A. I have been doing that for years and years.

Q. For what purpose?

A. Determining the lead content of foods and foods stored in glass.

Q. What I am interested in now, doctor—and this is all I am interested in—is the contribution of the lead
2114 from glass bottles to the liquids placed in those bottles. That is all I am interested in.

A. I have so answered you.

Q. Now, what tests have you performed to determine what amount of lead, if any, is contributed from glass milk bottles to the contents of those bottles?

A. Applying this same procedure which I have just given you.

Q. When did you perform those tests?

A. I have performed them off and on for the last twelve or fifteen years.

Q. And for what purpose?

A. To determine blanks on samples that came in for

the determination of lead. I not only used milk bottles, but used gallon bottles, brown bottles.

Q. As I understand you, doctor—perhaps we do not understand one another—as I understand you, you are saying that what you have done over a period of years was done in an effort to determine the lead content of certain substances?

A. That were stored in certain kinds of receptacles.

Q. And specifically glass milk bottles?

A. Well, I have had glass milk bottles as one of them.

2115 Q. I am interested just in glass milk bottles.

A. Yes, I see.

Q. And your purpose in doing that was to determine how much lead was contributed to the milk from the glass milk bottle?

A. Yes. Because I got samples of urine from glass milk bottles and then I found lead in them, and then I would have to run a blank with distilled water to see how much came from the bottle itself.

Q. But you don't know what was done with the bottle before the urine was put into it, do you?

A. No, I do not.

The Master: Q. Have you done that more than once, doctor?

A. Oh, yes, I have done that repeatedly.

Mr. Schaefer: Q. Now, doctor, I want to know what tests you have performed to determine whether or not once the bottle is rinsed out it continues—rinsed out so that the liquid in the bottle as it comes from the bottle is entirely free of lead—what tests have you then performed to determine whether or not another liquid not containing lead will pick up lead from the glass bottle?

A. I was only interested possibly in two or three different fields. I was not interested to see whether 2116 sodium hydroxide in milk bottles would pick up more lead, if that is what you are referring to.

Q. No, that is not what I am referring to at all. That question was perhaps not clear. What I want to know is how many times you have prepared a glass milk bottle so that it was free of lead.

A. Never could do that.

Q. What?

A. Never could do that, because it would always have lead.

Q. How many times have you tried to do it?

A. I could not tell you how many times.

Q. Did you ever try to do it?

A. Absolutely.

Q. Now, doctor—

A. What do you think I am telling you here? A bunch of falsehoods? I am a research man.

The Master: No, he is just asking you questions.

The Witness: Yes, but I don't want him to try any insinuations like that.

The Master: He is not making any insinuations.

The Witness: "Did you ever try it?" What do you think I am telling you here?

The Master: He is just asking you and you can tell him.

2117 The Witness: Certainly.

Mr. Schaefer: Now, Mr. Golding, will you read the last question before the witness' most recent outbreak?

(The question referred to was read as follows: "What I want to know is how many times you have prepared a glass milk bottle so that it was free of lead.")

Mr. Schaefer: Q. Now, what I want to know now, doctor, is the procedure that you employed in attempting to prepare a glass milk bottle so that it was free of lead.

A. I could not do that.

The Master: Q. Let us put it this way. You put in some distilled water to wash it out?

A. Yes.

Q. Just how carefully did you wash it?

A. It will always take up some lead again.

Q. The water would?

A. Yes.

Q. How long would you let this distilled water remain in the bottle?

A. As long as the fluid contained in it had been submitted to me. If the fluid had been in there seventy-two hours, then I would run a blank seventy-two hours.

2118 Q. What do you mean by a blank? Just an empty bottle?

A. You take this bottle. Suppose it contains 800 cubic centimeters of urine. I don't know whether all of that lead in that urine came from an individual. Some of it might have come from the glass container. That is not only milk bottles, but other bottles.

Q. Yes.

A. It will do the same thing. So we allow the same amount of fluid to stay in that container.

Q. Distilled water?

A. From the time the party submitted it to us, and they say this was in this bottle twenty-four hours. Then I am only satisfied with distilled water staying there twenty-four hours, and then I run that right through this process, and it may show a trace and it may show—

Q. The idea is to make a comparison?

A. We have to subtract the amount of lead from this particular container.

Q. Now, the distilled water would not contain any lead?

A. No. It is distilled.

Q. You put that into the glass bottle?

2119 A. That is as free as far as possible.

Q. And you permit that distilled water to remain in the glass bottle the same length of time that the—

A. That the unknown was in that same condition, whether it is a milk bottle or another kind of bottle.

The Master: Does that answer your question?

Mr. Schaefer: Pretty well, yes, sir.

Q. The tests that you have described then or that you have referred to were your control blank tests?

A. That is the blank test. We have to run those on everything that comes in.

Q. I thought you testified on direct examination that everything contained lead. Did I misunderstand you?

A. Practically everything does contain lead, as you say. The water that you are drinking every day has got lead in it. If you drink beer, it has got lead in it. If you drink whisky, it has got lead in it. If you drink wine it has got up to 124 milligrams of lead per liter of wine. So there is hardly a thing that you can touch—oysters, grains, —everything has got lead in it.

Q. Now, this distilled water to which you referred, however, does not have any lead?

A. It does not have any lead that we can determine by the Fairhall method. Using the dithizone method, which is a more delicate test, it might show the presence of some metal there, because it is frequently distilled from metal. That is why we do not use the dithizone method on metals, because it gives the results from other metals here, like a host of metals, unless it is especially carried out.

Q. That is, you cannot segregate one metal from another?

A. Yes.

Q. I don't know whether I got your figures correct on your direct examination or not, doctor. You said that normal people in the Chicago area eliminated 9/100 of a milligram from a liter of urine?

A. That is the maximum we find in students and other people not engaged in lead industries.

Q. Now, the other figure I was not sure that I got right is this: You said, as I understood you, 1 milligram or .1 of a milligram per liter in urine would indicate—

A. Absorption of lead.

Q. Would indicate absorption of lead?

A. Yes. From one-tenth of a milligram.

Q. Per liter?

A. Per liter of urine, yes.

2121 Q. Then your margin is—

A. Only one hundredth of a milligram, yes. Most of them in this area run near eight hundredths, but occasionally we find one that runs nine hundredths, so we have to use that figure.

Q. Now, will you describe the way these ink offsets to which you referred in your direct examination appear under the microscope?

A. They do not appear like the ink that I said the stenographer is using. Can I have your paper here, Master?

The Master: Yes. Take a plain sheet.

The Witness: Take one liter. There are innumerable little dots. They are all microscopic. Wherever he has taken this pen there is a deposition of pigment, under the microscope. Now, with this other we do not get these fine dots.

The Master: Q. What other?

A. With the linseed oil inks.

Q. Which was used on these containers?

A. Yes. We get these things in little shining particles. They are not little dots. Some of them will be very small, like this, but many of them will be confluent, or where they have run together. So then you get a form
2122 that you consider more of a smear under the microscope than this other would be.

Mr. Schaefer: Q. Regular or irregular?

A. Oh, they are irregular. Some of them are very

fine. Some of them are made of particles one hundred times the size of these small particles. In other words, it would be like a daub of your ink being pressed on there and squashed out, in contradistinction to these little dots here.

Q. Would it be entirely flat under the microscope?

A. No, it is raised.

Q. Raised uniformly?

A. No, it is not.

Q. It is irregular?

A. It is irregular. Anything that is stamped is irregular. Look at your razor blade and you will see a saw tooth edge on it that will surprise you under the microscope, where as if you look at it with your eye it is perfectly smooth. That is the way it is with ink.

Q. Now, in answering Mr. Rall's question as to the health hazard to a person drinking milk from the hypothetical container which he described to you, you based your answer that there would be no health hazard upon the insolubility of the ink and, hence, upon the impossibility of the lead in the ink getting into the milk?

A. On the insolubility of the lead linolate, lead pigment, getting into the milk, yes. You see, it is covered over by this film of linseed oil and it is also covered by a film of your paraffin. Both of these things are insoluble in fresh milk.

Q. Now, let us assume as you did in responding to Mr. Rall's question, that the application of paraffin has not, for some reason, been effective. Then your answer is based entirely on the insolubility of the ink in the milk, is that correct?

A. Yes.

The Master: Q. Which is it? Of the ink or of the lead?

A. The insolubility of the ink, the ink being made of this pigment, whether it is manganese, cobalt or lead.

Q. That is, no part of the ink would be soluble in the—

A. In the fresh milk, no.

Mr. Schaefer: Q. The lead is the pigment, is it not?

A. That is only part of the pigment.

Q. The oil is the vehicle?

A. The oil and the gums are the vehicle and they usually have a coloring matter in there. Sometimes it is lead chromate or it may be other things that are

used for color. Where it is green or red, they might use an iron. Those are called the pigments.

Q. Now, assume that that offset in the rough, irregular form in which you have described it, gets into the milk by means of handling the container, by means of friction, or by any other means, in insoluble form. Would that be beneficial to the health of the person drinking the milk?

A. From the offset, in the amount you refer to?

Q. Yes.

A. You are talking about the inside, under the worst possible condition, as exhibited here today. I don't think enough lead would come off there, if it was all scraped off, to do any harm.

Q. What I asked you, doctor, was whether or not it was beneficial to health.

A. Lead taken in is not beneficial, in my opinion, in any form. Whether taken in in food, wine or anything else, it is going to be deposited in the bones. It may cause no ill effects at all.

Q. Now, I will ask the other question: Is it disadvantageous to the health of the individual who 2125 drinks that milk?

A. I know of no ill effects coming from people consuming foods containing one hundred or more milligrams, up to four hundred milligrams a day of lead, as is found in our foods, since I have said that all foods would contain some lead.

Mr. Schaefer: Now, will you read the question to the witness?

(Mr. Schaefer's last question was read to the witness as above recorded.)

The Master: Q. Apply to that the amount of lead that may be found in this offset.

A. That would be very much less, from the appearance of the offset on the inside.

Q. Do you have any idea as to the amount of lead if the printing itself were on the inside of the container?

A. No, I have not any idea how much those letters would contain.

Q. Would you say it was up to this one hundred or four hundred milligrams you were just talking about?

A. The whole amount there?

Q. Yes.

A. Could I have one of these and cut it and I 2126 could tell you more. Give me one that is not an exhibit.

(Witness cuts into a carton.)

This is the one that contains the most lead, as I understand, contains 30 per cent of lead.

Q. You mean the ink?

A. The ink contains 30 per cent of lead. I think if all of this ink in here were to be put in a—

Mr. Schaefer: Referring to the printed surface of the container?

The Witness: A. (Continuing.) —platinum dish—

Mr. Rall: Referring to the outside or obverse of a flat blank similar to Plaintiff's Exhibit 91.

Mr. Schaefer: Printed side.

Mr. Rall: Printed side.

The Witness: A. I think this would contain a hundred milligrams, easily, if this were all oxidized. If we could just remove all of these letters as is and subject it to a chemical examination, we could tell. There is quite a little pigment segregated here, although it is a very thin coating. The coating is microscopic in size.

The Master: Q. It is what?

A. The coating is microscopic in size. It is very thin.

Q. All of this ink, or as much of it as could be 2127 rubbed off into the milk, you say would contain less than a milligram of lead?

A. I think it would contain close to a hundred milligrams. It might be a little bit more. The bands are quite heavy on the bottom there and they are wide.

Q. Would you consider that a detrimental to health?

A. No. I could take a hundred milligrams of lead, and probably do, and probably all of us do take several hundred milligrams of lead every day in our food.

Q. Would you say that would be injurious to an infant five months old?

A. Nothing so insoluble as this; I doubt whether it would hurt anybody. It is only when it becomes soluble and enters the blood stream. If you got my definition of a poison this morning, a poison is a substance which, when it enters the blood stream and acts chemically is capable of seriously affecting health or causing death. So this stuff would have to go in solution. I could give you a teaspoon full of barium sulphate and it would not hurt you at all, but if I give you a teaspoon full of barium chloride, another salt, I could kill you. It is the 2128 solubility of these things that makes them act as poisons.

Q. Even though that may not be soluble in the milk, can that become soluble in the system?

A. No, I doubt very much if that would become soluble. I think most of this would be eliminated as a lead salt by the gastro-intestinal tract in the feces.

Q. Let us assume now that this lead in the ink on the container would amount to, say, six hundred milligrams?

A. And it were soluble or insoluble?

Q. No, also insoluble. And it got into the milk and were consumed by a person. Would that lead, six hundred milligrams, or even a thousand milligrams affect the health or be detrimental to the health of that individual?

A. When you get up into large figures like that, yes, because there might be some of this lead—I don't know what form they use, outside of the lead oxide. They may use a litharge. A litharge is slightly soluble in gastric juices and intestinal juices. But the form of the lead in a linseed oil preparation is difficultly soluble, and I think that would be eliminated unchanged.

Q. Even though you have a thousand milligrams?

2129 A. Ninety-eight per cent of it would be eliminated unchanged, because its solubility is only about 2.3 per cent in gastric juices.

Q. Let us assume you had a thousand milligrams in a container of milk and an infant less than five months old should consume some of this milk; would you say that would not hurt the infant in any way?

A. It depends on how much went into solution.

Q. That went into solution in the body?

A. That went into solution in the body, yes, sir.

Q. It would not go into solution in the milk?

A. No, sir.

Q. Then the mere fact it is insoluble in the milk does not indicate that it may not be partially soluble in the gastric juices?

A. No, sir. Some of it might go into solution in the hydrochloric acid and gastric juices in the stomach, which I know does happen, and also in the bile. But in dog experiments, where I used lead acetate, a very soluble substance, I recovered over 94 per cent of the lead found in the urine and stool. Those experiments covered over a year's time. Metabolism cases.

Q. Would you say then, a thousand milligrams of lead contained in this sort of ink, in a container of milk,
2130 and fed to a baby less than five months old, might or might not cause injury?

A. It might, yes. A thousand milligrams is a lot of stuff. That is one gram or 15.45 grains. It has a lot of foreign materials to put into a body of a baby.

Q. But a hundred milligrams, which you say is the amount contained here, would not cause any damage?

A. I don't think that would hurt, because we are taking that much in our food all the time.

Q. But a child?

A. A child is getting that in its dextrose maltose and in the milk it is taking.

The Master: Go ahead, Mr. Schaefer.

Mr. Schaefer: Q. Now, going back a moment, you said that normal people in the Chicago area eliminated nine hundredths milligrams per liter of urine?

The Master: In the weight.

The Witness: A. Nine hundredths of a milligram. .09.

The Master: The weight of the lead in a liter?

Mr. Schaefer: That is what I mean.

The Witness: That is the maximum normal.

Mr. Schaefer: Q. How much would that be increased to eliminate one hundred milligrams of lead?

A. How much would that have to be increased?

Q. Yes.

A. That would have to be increased many thousand fold to get a hundred milligrams. You see, if it is increased ten times we would have nine-tenths milligrams and that would have to be increased ninety-nine times, practically, in order to get a hundred milligrams of lead.

Q. Yes. Now, you had a margin, I understood you to say, of one-hundredth of a milligram between the indication of lead intoxication and the normal amount of lead eliminated in urine?

A. That is right. Anything over nine hundredths. That is the high normal. That begins to show manifestations of lead. But that has to be modified, too. I find people every now and then that have eighteen hundredths, twice that amount, and still do not show any signs of lead intoxication, no lead line, no gastric disturbance and no decrease in the lead count or hemoglobin. So there are exceptions to that.

I had a case just last week where double the amount was found in the urine, and the man was not suffering from lead poisoning. He happened to be suffering from a
2132 dysentery or food poisoning, but he was a painter, so we had to examine him to see if lead was a factor.

Q. But where you get double the normal elimination of

lead, without getting indications of lead intoxication, other indications, the occurrence is rather abnormal?

A. That is abnormal. Anything over .09, or 90 per cent of the cases where it is over .08 would give you that. In my book I give the figure of .08, but we have run a lot since that figure, and I believe now that .09 for Cook County and Chicago is probably the figure.

Q. Now, for a person to get rid of 100 milligrams of lead taken into the system through the mouth would require that volume of lead elimination to be increased substantially, wouldn't it? I think you said ten times.

A. You are figuring on urine, of course. All of that would not be eliminated by the urine. 90 per cent and over of these animals, 94 per cent was all eliminated by the stool.

Q. Doctor, when you testified to your figure of nine hundredths of a milligram per liter, you were not considering the amount eliminated by the stool either, were you?

A. No, but we know it is eliminated all the same.

Q. So we know that we are comparable.

A. That person could have been taking two hundred milligrams of lead a day and that amount show in the specimen which we are taking into consideration.

Q. Now, doctor, assuming that lead from paper milk containers is taken into the human body in the manner I have described, will the effect be beneficial upon the health of the individual who takes it?

Mr. Rall: I am going to object to that question. There is no evidence here that any lead is taken into the human body from milk containers.

The Master: Overruled. Go ahead and answer.

The Witness: A. In what amount did you state?

Mr. Schaefer: Q. First, in any amount, will it be beneficial?

A. I know of no pathological changes in the human body from the normal consumption of lead from our every day foods.

Q. Translate it. That means—

A. In other words, it means that the lead we are taking in our foods, which would include this milk, does not exert a change in the liver, the kidney, the heart, the lungs, the stomach or the bowels.

Q. That is, you know of no beneficial effect?

A. I know of no pathological changes seen in the organs of some twelve thousand people whose organs I have

examined, and all of them were taking lead every day into their systems.

Q. Now, the effect of lead on the human body depends, I suppose, quite largely on the quantity taken?

A. On the manner in which it is taken. By the gastro intestinal route the effects are the least. By inhalation the greatest damage is done, because is it inhaled by the individual and does not go through the portal system and is immediately taken up in the blood, and goes to all the organs of the body and is deposited in the bones as basic tricalcium lead phosphate.

Q. And the quantity taken in is an important factor?

A. The quantity taken in is an important factor.

Q. Now, the total quantity of lead in the human body is one of the factors which determines whether or not that person will suffer from lead intoxication, isn't that correct?

A. That person, yes. If that person has absorbed a considerable amount of lead from his daily intake of food, 2135 which contains lead, and then he is subjected to insults of something that contains more lead, he is storing up lead in his bones that some day might come out with a rush and cause illness.

The Master: Q. Provided that this lead is taken in in soluble form?

A. It has to be in soluble form in order to get in the blood stream. It has got to go through the little ventricles and capillaries to get into the blood stream and then it is carried to all parts of the body and finally takes the place of the calcium in the bones and is deposited there as basic phosphate.

Mr. Schaefer: Q. Is an increase in the amount of lead taken into the human body desirable?

A. No. Lead is not a desirable factor, any more than arsenic or manganese. Any metal that does not enter into the metabolism of the human body should not be taken into the system, if we can prevent it, but in the form of food we cannot separate the lead from the food, from our beer, our wine, our drinking water.

Q. Now, doctor, when you determined the presence of lead in glass milk bottles, in what quantity did you find it?

A. That varied from traces, where distilled water 2136 had stood only over night, eighteen to twenty-four hours to water that had stood in similar bottles where 2.12 milligrams of lead were found in a thousand cc. This particular type of bottle was cloudy, showing that water had

acted on it or other things had acted upon the bottle itself. All milk bottles gradually become cloudy, or if water stands in them for some time you can find a ring formed at the top of this water. That not only applies to milk bottles, but other types of bottles. Even our best glassware will get a cloud in it where solutions have stood in it for some time, showing that the water and other substances in these bottles had acted upon the glass. Glass always has some sodium silicate present, and that makes it alkaline, and that alkalinity produced there dissolves out some lead.

Q. From what?

A. Dissolves. The alkalinity of that water from the sodium silicate dissolves out lead.

Q. From what?

A. From the glass itself, in the water.

Q. And the highest you found was what?

A. It was 2.12.

Q. What was the average?

A. Well, the lowest was a trace. If I run thirty
2137 or forty of these I would simply have to add up all of them. I could not give you the average, because I haven't got all of the figures.

Q. What do you mean by a trace? A measurable quantity?

A. No. Where we could not titrate it. But we knew there was a coloration, either by the dithizone method or by the Fairhall method, up to where I titrated enough in the end where two hundred solutions gave me 2.2 milligrams of lead, and that would have to be subtracted from the 1000 cc. of the unknown, in order to arrive at a proper factor.

Q. You do not remember now the average?

A. No, I would not remember it. That has been done over a period of years and I would not have the records back when we were doing that.

Q. Do you know of your own knowledge whether or not paraffined paper containers, like Plaintiff's Exhibit 2, are absorbent?

A. Absorbent in what way?

Q. Absorbent in any way.

A. Absorb anything?

Q. Yes.

A. You mean from the outside or inside?

2138 Q. Let us take from the inside first.

A. That had been thoroughly coated with paraffin?

Q. I didn't ask you that. I asked you about Plaintiff's Exhibit 2. Do you know of your own knowledge?

The Master: I asked him about that this morning.

Mr. Schaefer: Sir?

The Master: I asked him about the absorbent qualities this morning.

Mr. Schaefer: Yes, I know you did.

The Witness: I don't know, because I have not experimented with this particular exhibit.

Mr. Schaefer: Q. Now, is it not a fact, doctor, that any solid substance is undesirable in an inflamed bowel or intestine?

A. Any solid substance that could act as an irritant would be objectionable in a bowel that is undergoing any inflammatory reaction, like a mucus colitis, enteritis or dysentery.

Q. Would you say any solid substance could be irritating? Can any solid substance be irritating?

A. Depending on the size. If we introduced flour into a bowel, it would not be irritating to the lower bowel, because it would be acted upon by the digestive juices. We introduce irritants to cover up these inflamed bowels.

We introduce bismuth, sub-nitrate and those things to cover up inflamed bowels, which in itself in large pieces would be irritating, but in the form of impalpable power is not irritating.

Q. Yes.

A. So if your paraffin was in real small particles, it would not irritate any bowel, but in large chunks, yes.

Q. How much are you being paid for testifying here today, doctor?

A. I don't know whether it is material or not.

Mr. Rall: Go right ahead.

The Witness: A. I charge my usual fee, one hundred dollars a day.

Mr. Schaefer: Q. Is that the fee you ordinarily charge?

A. Yes. In some cases I get twice that. Usually it is one hundred dollars a day.

Q. Do you spend a lot of your time testifying?

A. Not as much as I used to.

Q. Have you any idea how many cases you have testified in?

A. Many hundred.

Q. Many thousands?

2140 A. I don't know. Maybe it is thousands.
Mr. Schaefer: That is all.

Redirect Examination by Mr. Rall.

Q. Doctor, when you referred to large chunks of paraffin being irritating, can you give us a more particular description of what you mean?

A. If this one hundred grams that has been referred to was in one chunk—

Q. One hundred milligrams.

A. One hundred milligrams, which would be merely twice the size of a kernel of wheat, in my opinion that would be irritating. If it was in comminuted form, very small particles, no.

Q. You have referred to there being possibly one hundred milligrams or a little more on Plaintiff's Exhibit 91 of solid material in the ink. You were referring to the printed side and not to the inside, is that correct?

A. I was referring to the printed side, yes, knowing that someone had said this contained thirty per cent lead. The reason I know from an examination of the plates that that contained very much lead—I know that that is what
2141 it would be, about what it was. These transfers on plates contain lead, like calcium, bismuth. I have done work along that line.

Q. You say that the total quantity of lead already stored in the body from any source is a factor in the later cause of lead poisoning, if there is an increase?

A. Yes. If a person has a large amount of lead stored up in his bones, he may have no symptoms whatever, but when they use my method of eliminating that lead from the body they sometimes create a case of lead poisoning. Such an occurrence occurred at the Ravenswood Hospital. A young lady came in for an examination, and instead of giving her the ninety grains of potassium iodide, as my method calls for, the nurse gave it to her three days, a beautiful case of lead poisoning, because the lead was drawn out of her bones and thrown into the circulation in massive amounts, and she got a case of typical lead poisoning.

Q. Do infants under the age of one year ordinarily have stored up quantities of lead?

A. Not unless they have been chewing their cribs or

they have been subjected to lead nipples. Those cases 2142 are very rare. They do get it, but it is very rare.

Q. The number of times that a glass milk bottle has been put through the chemical solutions which are used to sterilize it might have an effect on the inner surface of the glass bottle, insofar as releasing lead is concerned, might it not?

Mr. Schaefer: I object to leading the witness, if the Master please.

The Master: Oh, I will let him answer the question.

The Witness: A. Yes, it would, because it offers more surface for the water to impinge on. For instance, if you take that piece of paper in front of you and you wrinkle it up or tear it into minute pieces, you will have a greater surface for water to act upon than if you had it right out flat. The same way with indentations on a bottle. If you punch a lot of holes in that bottle, which is virtually what the chemicals are doing, you have a greater surface for them to act upon.

Mr. Rall: While you were describing the Fairhall procedure, you were interrupted by counsel. Is there considerable more to the procedure?

A. We got down to the point where we were titrating it, and to complete the method we titrate this with 2143 N/200 sodium thio-sulphate, until the blue color disappears. The blue color is due to the indicators in the iodine, and when we get to the point where there is no further color we subtract our blank from the amount we titrated and multiply that by .345F, which gives us the milligrams of lead in the unknown. That completes it.

Q. And those are the methods which you have used in determining the presence of lead in glass bottles?

A. Yes.

Q. And other food containers?

A. Yes, sir.

Q. You were asked to assume that 100 milligrams of lead, from a paper milk container, got into the milk from the printing. From your experience do you know of any instance of the situation so assumed?

A. I know of no intoxication from the lead from printing in containers such as you have exhibited here.

Q. If Plaintiff's Exhibit 91 were turned inside out, so that all of the printing on the outside of the container were next to the milk and the container was not paraffined, do

you have an opinion whether there would be any lead in the milk, if it were so handled?

2144 A. Yes, I have an opinion.

Q. What is that opinion?

A. I think there would be some lead in that milk.

Q. And in what quantity?

A. It would be very small, but there would be some lead.

Q. If the outside were turned in?

A. Yes.

Q. Would that quantity be within the range that you feel would have no effect on the human body?

A. Yes, it would.

Q. So, in addition to your answer being based on the insolubility of lead in milk, the quantity that might possibly get into the milk is also a factor, is that correct?

A. It always is a factor, yes.

The Master: Q. How would the lead get into the milk in such a situation?

A. That has not been brought out by either side, but I believe it would get in there in this manner; that wherever you have printing and you are handling large quantities of these things, there is a very fine dust gets onto the paper, and if I had my microscope here I could demonstrate that there is some dust coming off of them.

2145 Q. Coming off of the printing?

A. Yes, sir. Some dust coming off of that printing. So the expert cannot say truthfully that there would be no lead in that milk. It would not be from the solubility, but from the dust. If you go into a lithographing plant and see these things piled up—and I have made dust counts in these places—you can see this green powder on the floor, if they haven't swept their place. Or if you take an air sampling, such as I have, you can find that dust in the air where these men are working. When it is in that condition—of course, you are putting that to a very rigid test by putting that in. I would be willing to drink that every day, the way it is, out of these containers, but still there would be some lead in there.

Q. Is that the only way the lead would get into the milk?

A. Yes. It is insoluble in milk. It is insoluble in water, this particular pigment.

Q. Let us see if we get this straight. You said there was an oxidation film over the printing?

A. Yes.

Q. So that would prevent solution of the lead into the milk?

2146 A. Yes

Q. You say, however, there is a dust which might fall into the milk?

A. That would come if we would put it to the most rigid test, which would not do. These things, which are packed together, there is a little friction in here. It is microscopic. If I dusted this all off I might not find anything, because it has been exposed to the air. All you might find is silica, floating from the outside air in here. But there will be some lead come on. Up here there would be practically nothing.

Q. Referring to the offset.

Mr. Rall: Q. Referring to the offset on the inside of Plaintiff's Exhibit 91?

A. No, sir. Because that has been dried, and when that thing is pulled off there is an infinitesimal amount.

The Master: Q. Let us get back to this, doctor. You say, first, there is this oxidation film that would prevent solution of the lead into the milk?

A. That is right.

Q. However, you say there is a dust on the paper which would fall into the milk, without necessarily being in solution in the milk?

2147 A. Yes, but a person will get that if they drink it.

Q. How is that?

A. A person will get it if they drink that milk.

Q. Now then, Mr. Schaefer pointed out that the ink which constitutes the printing is not there in even layers, but may be there in ridges?

A. That is because I said under the microscope it would be discernible to the naked eye.

Q. Those ridges might be worn off a little bit, so as to make this dust, too?

A. Oh, that is so small. That is microscopic. It might be one three-hundredths of an inch.

Q. I mean, it would enter into this, being a source of dust?

A. Yes. Just the fact of rubbing these things, you can create dust, and a man piling that across like that, and he keeps doing that continually, he is going to raise a little dust, so if these things were not shaken down like that, probably they do get dust from the street and things like

that, so there surely would be some lead get into the milk, offhand, in that way, but not the other.

Mr. Rall: Q. And when you refer to it getting in 2148 in that way?

A. I mean if I made a test of that milk, without any previous tests, I would find lead in that milk.

Q. If it was so handled?

A. Yes.

Q. Under the severest tests, you still say there is no problem of health hazard involved?

A. Oh, no. From the way you have explained it to me, there is no health hazard.

Mr. Rall: That is all.

Recross Examination by Mr. Schaefer.

Q. Why would not dust come from the offsets, doctor?

A. That would be so infinitesimally small. This printing here would be—

The Master: The printing on the outside?

A. The printing on the outside would have several thousand times more of lead, expressed in milligrams or fractions of milligrams, then what I could get from here.

Mr. Schaefer: Q. But there would be dust, there might be dust on it?

A. It would be very small, because this is exceedingly small.

2149 Q. Of course, the amount of dust will depend upon the amount of printing, I suppose?

A. Yes. If you took all of the printing from these things and put it in the milk, you would have some lead there.

Q. But apart from the quantity, is there anything in the nature of offset as opposed to the direct printing—

A. No, this offset will be smoother.

Q. I haven't asked you anything yet, doctor. Let me finish my question.

A. Yes.

Q. (Continuing) —that would prevent dust from occurring from the offset?

A. Yes, because the offset is so infinitesimally small.

Q. I said, apart from the quantity.

A. Apart from the quantity?

Q. Yes.

A. No. You can get even pieces of paper from here, if they were not shaken or handled in that form, you would get some little dust.

Q. Then your answer is, apart from the quantity, there is no difference between the offset and the printing?

2150 A. There may be in quantity, yes, in marked quantity.

Q. Yes, but apart from that there is no difference?

A. Yes. Lead could come in, if there was dust on this side of the package, just as well as if I develop it on the other side. Dust will come from there, but not from the solubility. From the dust.

Mr. Schaefer: That is all.

The Master: Anything else?

Mr. Schaefer: No, sir.

The Master: One other question with reference to this distilled water standing in a glass bottle.

Q. You say after a while it might show some lead?

A. Yes.

Q. Is it possible that some of that lead might come through the air?

A. Well, we have the milk bottles all stoppered up and covered up with filter paper. They are plugged with cotton, and then we have a piece of filter paper, 15 centimeters in diameter, making a cap, so there is nothing coming from the air. But the air even in this room contains some lead.

Q. That is what I mean.

A. Yes, the air, every place has some lead in it, more down on the street than up this level.

2151 Q. But in making this experiment you did everything you could to prevent lead from the air coming into it?

A. Yes, because it was all done under the same conditions. The blank was run the same as the other.

The Master: Anything more?

Mr. Rall: No, that is all.

The Master: That is all, doctor.

(Witness excused.)

The Master: Let us have a short recess.

(A short recess was here had, after which the proceedings were resumed as follows:)

The Master: You may proceed.

Mr. Gariepy: Dr. Vaughan.

R. T. VAUGHAN, was called as a witness by the plaintiff, in rebuttal, having been first duly sworn, testified as follows:

Direct Examination by Mr. Gariepy.

Q. State your name?

A. Doctor R. T. Vaughan.

Q. And your address?

A. Cook County Hospital.

Q. You are a licensed physician and surgeon in this state?

2152 A. Yes, I am.

Q. How long have you been such?

A. Since 1904.

Q. What is your position at the Cook County Hospital now?

A. I am attending surgeon and night superintendent.

Q. And you have been there since 1904?

A. Since 1913.

Q. Are you acquainted with the procedures employed at the County Hospital now in cases, pre-operative cases on patients and post-operative cases, with regard to ordinary treatment?

A. Yes.

Q. Are mineral oils used in pre-operative cases?

A. Yes, very frequently.

Q. Is that a customary procedure at the Cook County Hospital?

A. Yes. Many services use that as ordinary preparation for operation. They use mineral oil and enemas, to insure an empty alimentary tract.

Q. How about post-operative treatment?

A. Yes. It is used post-operatively also, especially in rectal complaints, like hemorrhoids and fistulas, so
2153 as to insure a liquid soft non-irritating stool.

Q. How does that mineral oil compare with the commercial paraffin, such as is used on paper containers or food containers, doctor?

A. Well, it is derived from the same source as paraffin and it is essentially of the same chemical make-up.

Q. Does it contain alkali and acids?

A. No. It should be neutral to litmus paper.

Q. Is paraffin used in such cases as bone cavities by the surgeon?

A. Yes. Solid paraffin to fill out bone cavities and aid their granulation. It is used as bone wax.

Q. For building up places?

A. There may be a cavity in the bone and the bone often fills in with new bone, under a protective plug, of which paraffin is the base. Beck's paste and Morhoff-Mositing paste are two commonly used bone pastes, having a paraffin base.

Q. Is liquid paraffin also used in cases of treatment of hernia?

A. No, but solid paraffin is.

Q. How is that used?

A. Hernia is a hole in the belly wall and it is plugged in by injecting liquid paraffin. It is melted up by heating and injected, and solidifies at the body's temperature.

Q. You also, I think, said it was used in cases of hemorrhoids?

A. The mineral oil is used in cases of hemorrhoids. Mineral oil is a heavy, clear liquid, clear like water, whereas paraffin is a solid.

Q. What is the usual treatment given in cases of bowel obstruction, in diagnosis of bowel obstruction?

A. There is a lot of things given, but mineral oil is used in a diagnostic way. If the mineral oil comes through and appears in the enemas and in the stools, we know obstruction is not complete.

Q. How does this mineral oil compare in quality, doctor, with regard to alkali and acids, with the paraffin that is used on commercial containers, such as this white paraffin?

A. They are both neutral in reaction.

Q. Have you made any inquiry, doctor, with regard to treatment of babies, the history of disease in babies, to ascertain whether there is any case of record wherein babies have been fed that have a diseased or irritated intestinal tract by reason of any paraffin or mineral oil?

A. No. The effect of paraffin is just the opposite. Paraffin is emulsion. Paraffin, vaseline, mineral oil, are all used as sedatives, as protective agents. A great many protective unguents have a paraffin base.

Q. What about the oil we use in our nose to resist infection?

A. Vaseline has the same base. It is half way between paraffin and mineral oil. White petrolatum and white vaseline that you get is usually made by mixing paraffin with mineral oil and bottling it up and mixing it up.

Q. And that white paraffin is used by the surgeon in what instances, doctor, in treatment?

A. Well, it is used for different purposes. The hard paraffin is used, as I say, to fill out hernial depressions. It used to be used a great deal more than it is now, because it retains a certain fluidity and does not stay in place very well. It is not used now nearly as much as it used to be. It was also used for burns, sprayed on as a liquid, with or without some mild antiseptic, and thus protected the burn from the exterior world. Most services now use tannic acid.

Q. Instead of paraffin?

2156. A. It gives a preparation that is a little heavier and forms a firmer coat than does the paraffin.

The Master: What was that last?

The Witness: Tannic acid. It turns limbs brown.

Mr. Garjepy: Q. Does this white paraffin permit penetration of bacteria, doctor?

A. Permits penetration?

Q. Yes.

A. Well, bacteria won't go through a layer of paraffin, if that is what you mean.

Q. Yes.

A. But bacteria next to the skin will not go out very easily, such as the elimination of pus, paving the way.

Q. It seals it in?

A. It does not seal it in. The fact is paraffin is so pliable that it easily enables secretions to come through. We also use dressings soaked in paraffin, because the pus comes through the mesh quite easily, and then the absorbent dressing put outside of that can be changed without disturbing the surface of the wound. That is what we call paraffin gauze. That is hard paraffin. It has been used for subcutaneous injections, for cosmetic defects, for

2157 dimples and depressed scars and depressed noses. It is injected into the tissues while warm, and the paraffin has to be used at a melting point sufficient low so that it does not produce a burn. It is generally heated up to about 120. You have got to have paraffin which melts around 120. 130 will burn, although it is a very mild burn.

Q. And these paraffin dressings that you refer to are dressings that are put right next to the open skin, after injury?

A. Right next to the open wound, you mean?

Q. Right next to the open wound.

A. With the skin taken off of it, yes.

Q. Now, the procedures that you refer to, doctor, are employed at the present time by physicians and surgeons at the Cook County Hospital and by the Cook County Hospital?

A. Yes, although I understand most of the services are using tannic acid now in preference to paraffin. During the World War paraffin, a French preparation, known as amprene, was very popular and used on the Western front, before the tannic acid treatment was extended up in Detroit.

Q. The American Medical Association has passed upon the procedures and techniques employed at the Cook 2158 County Hospital, for approval or disapproval, haven't they?

A. They have a book or list of accepted remedies that are approved for use everywhere.

Q. And are these remedies and these procedures and these techniques you refer to generally approved by medical science?

A. Oh, yes. The preparations are in the U. S. Pharmacopoeia, where the U. S. Pharmacopoeia states the uses and values of preparations.

Q. Did you attempt to ascertain from any pediatricians, doctor, with regard to their experience and findings in children under five months old being afflicted in any way by reason of the taking of any paraffin into the intestinal tract?

A. No, I know of no instances of paraffin in the intestinal tract doing any child any harm.

Mr. Garipey. Cross-examine.

Cross-Examination by Mr. Schaefer.

Q. Now, doctor, this mineral oil to which you testified, which is used in pre-operative and post-operative treatment, is that in liquid form?

A. Yes.

2159 Q. Do you ever use undissolved paraffin in pre-operative or post-operative treatments?

A. No, because you usually use the liquid, because of the greater readiness with which liquid spreads over a surface. Vaseline has been used for the same purposes, but it does not flow quite so easily and most people prefer to take mineral oil to taking vaseline.

Q. Yes.

A. But the chemical reaction and the chemical properties are essentially the same. There is just the difference in melting points.

Q. Now, have you ever heard of administering undissolved paraffin to infants under the age of one year, for any purpose?

A. No. Mineral oil or vaseline would be preferable. The paraffin would not liquify in the body and therefore would not spread over the whole intestinal surface. It would go through as a foreign body.

Q. Are you a pediatrician?

A. No. I am a surgeon.

Q. And do you think yourself competent to testify as an expert with respect to matters of pediatrics?

A. Within limits, because I do pediatric surgery.

2160 Q. But, apart from pediatric surgery, do you consider yourself competent to testify as an expert?

A. I am not a trained pediatrician. Of course, I have had more or less experience with children, but I am not a pediatrician.

Mr. Schaefer: That is all.

Mr. Gariepy: That is all, doctor.

(Witness excused.)

Mr. Gariepy: With the exception of the depositions, everything else is in.

The Master: Do you want to show proofs closed, outside of the introduction of the depositions?

Mr. Gariepy: Yes.

Mr. Rall: As a matter of fact, at the close of the plaintiff's case in chief we did make an offer of the depositions and they were received, subject to the Master's ruling on the written objections which Mr. Schaefer was to attach.

Mr. Schaefer: That is right.

The Master: Then let the record show proofs closed, with the exception that Mr. Schaefer may present his objections to portions of the depositions or such portions as he may see fit to object to.

Proofs closed.

2161

• • (Caption) • •

Stenographic report of informal conference had at the office of United States Master in Chancery Jacob I. Grossman, Suite 753, United States Court House, Chicago, Illinois, at 11:00 a. m., Saturday, March 9, 1940.

Present:

Mr. Fred A. Gariepy and Mr. Owen Rall, representing the plaintiff;

Mr. Walter V. Schaefer and Mr. Charles P. Horan, representing the defendants.

The Master: I read over the briefs in this matter some time ago and some questions have occurred to me. One thing I have already mentioned to you gentlemen, as to whether this suit in the court at this time may be a little premature. My thought is this:

It seems to be agreed that the subject of milk containers is proper to be included in an ordinance, that health measures concerning milk which affects municipalities generally first receive the consideration of the United

States Public Health Service, that the Public Health Bureau has framed a model ordinance, which has been followed by municipalities generally, and that whenever a change is to be made in general practice concerning milk usually the United States Public Health Service is the first to consider and pass upon the change.

In this matter it appears that the United States Public Health Service has been investigating the subject of paper milk containers for some time and has made suggestions concerning that type of container, and finally the Bureau has made an amendment to its model ordinance.

While this suit was pending the Board of Health of the City of Chicago learned of the amendment, and, following the usual course, promptly recommended to the City Council that the ordinance be amended so as to follow the recommendations of the United States Public Health Service. The City Council Committee has the matter under consideration.

That all seems to be the usual course. The evidence has been introduced in this case, but of course the Council Committee or the Council itself would be free to consider any kind of evidence, whether it be strictly

admissible in a court or not. There are many considerations entering into the passage of an ordinance which are not strictly admissible in a court proceeding.

The Council Committee has stated that it will defer consideration of this question until after the court has passed upon the matter. I have been wondering whether the correct procedure should not be the reverse, that the Council Committee should be the one to first pass upon this, rather than the Court.

That question in my mind opened up a rather broad field. For instance, we can imagine that over a period of years various questions such as this have been decided by legislative bodies, so that statutes or ordinances may have resolved questions in controversy from time to time by inserting in the legislation a statement that a particular thing or process or something else should be used.

Now, let us imagine that some inventor decides that he has perfected a device or process, or whatever it may be, which is superior to the thing mentioned in the ordinance. Ordinarily we all know it takes some time for a new device or process to stand the test before such a thing is adopted generally. For instance, we recently heard of the magnanimous act of some doctor who said that he had found a medicine which could be put on the teeth to take away all unpleasant sensations attendant upon the dentist grinding the teeth, and he dedicated that discovery to the profession and people generally. I am told that the dentists went after that with considerable enthusiasm, but in a short time they decided that the new thing was not exactly what its inventor promised. I presume he was about as much disappointed as the dentists generally. So I say it takes a little time for a new thing of that sort to stand all of the tests necessary, and it takes some time for it to percolate into legislation.

Now, if every inventor could immediately run into court and demand that the court hold a hearing on his invention and decide that that invention is what he claims it to be, the effect would be that the usual procedure would be changed and the usual tests to which the thing must be put before it is generally adopted would not have to be used any more.

That is just a brief statement of the broad question that is involved. In other words, should legislation be permitted to follow its natural course, or should the courts interfere

and upon the suit of any inventor immediately tell the legislative body that their existing legislation is invalid and virtually mandamus them to pass a new set of regulations, or that the court will simply permit this new device to be used? Should the courts undertake what is essentially a legislative function that early in the game?

I was wondering whether a more accurate statement would be that the ordinance does not yet permit, and that is something that is more in harmony with the actual facts in the case. That is to say, if you discover something new, naturally it would not be the subject of any ordinance and it was never in contemplation at the time the ordinance was passed. The question is whether you are going to give the legislative body an opportunity to permit the use of the new device. And the ordinance does not yet permit, because the legislative body has not had the opportunity in the regular course that I have described to permit the new device.

2166 I have stated this rather generally. I have talked to you both, and you get my general idea. I thought I would ask you that.

In connection with that same subject, this thought occurred to me: Assuming that the courts should hold that this ordinance is too narrow and that these containers should be permitted, can the court order a permit without machinery therefor?

The thought that I have there is that in the existing ordinance there is provision for regulating the use of the glass bottle, namely, there are provisions as to cleaning the bottle and for inspection right along.

Now, if the ordinance is invalid as to plaintiff, does it necessarily follow that a court should say, "Well, you go ahead and use these paper containers, even though there is no system of regulation whatever."?

It may very well be that the particular containers presented in this case may not be subject to objection, but is that an assurance that future containers, manufactured even by the same plaintiff, would be sterile, or essentially sterile, as you put it, or that the conditions under which the bottling is done would remain the same?

2167 In other words, in the case of bottle cleaning there is a continuous regulation. The mere fact that there is an inspection, say, today does not mean that the cleaning process is going to remain exactly the same for a year.

There is a periodical examination, so as to keep them observing the regulations.

No, if the ordinance is invalid as to plaintiff, does it necessarily follow that it is invalid as to glass bottles? That is a question I have in mind also.

There is some suggestion in the brief of the City which gives rise to this question: Does the glass milk bottle, the so-called standard milk bottle, give the purchaser an opportunity to see whether the milk is dirty or not, whether there is any dirt in the bottle? What is there in the ordinance to the effect that the glass milk bottle is not required in order to prevent fraud; in other words, to give the purchaser an opportunity to see what he is getting?

The statement in the brief of the City which gave rise to that was the one about the cream line. A purchaser might look at a glass bottle and see whether there is a 2168 cream line or not. He would also see whether there is dirt in the bottom or something floating around.

Of course, you might say in answer to that, "What about the can of condensed milk? You cannot see what is in that." I heard of a case, or somebody mentioned a case about a can of condensed milk, where they found a foreign body in it, and suit was filed.

Mr. Rall: They found a mouse. That was in the Circuit Court of Appeals.

The Master: That is the case. They sued them. But that goes back to the other question: Is this glass milk bottle something for the benefit of the purchaser, so he can see into the bottle before using it? There might be something else floating around.

Stating specifically the question I first raised, you both seem to agree that this ordinance prohibits the use of paper containers. When I say that, I am passing your contention that the ordinance is broad enough to permit the use of paper containers. But after you pass that first contention, you say that it does prohibit.

Now, there is another question I marked down, about absorbency. At first the plaintiff in its brief possibly got out on a limb when the contention was made 2169 that there was no absorbency. The City in its answering brief pointed to some evidence which showed there was absorbency, and then, as I understand it, the reply brief conceded that there might be some slight absorbency, but so slight that it could not be considered as material.

Therefore, is it necessary that there should be inspection so as to insure that there will not be more absorbency than the amount that is present now, even though it may be immaterial at the present time? For instance, one batch of containers would not necessarily be the measure for the next batch. There might be a change in the method of manufacturing. As I have said, there might be a change in the method of cleaning glass bottles. That is why they have a system of inspection that periodically requires an examination of the method of cleaning.

Should the court grant relief, which would practically be a mandamus to enact a system of regulation? You see, the first question in that connection is: Should the court first say that the ordinance is invalid, and then throw the whole thing open for the use of paper containers, 2170 if the court realizes that even if paper containers are permitted there should be some system of regulation or check to see to it that even if such containers are all right under the evidence now, they will be in the future?

That raises the other question. If there has to be some system of regulation, should the court, if it says that these containers are all right, be required to enact a code for the regulation of the use of these containers as incident to its decision that these containers are proper? In other words, is the court going to assume legislative power? Should the court go ahead and say to the community that these paper containers are all right, and while the court knows that they may be all wrong in six months, if the same safeguards are not followed and observed, yet the court simply will not do anything more? Or would the court in a case such as this say that while these things may be permitted that the court might, as an incident to granting relief, require certain safeguards? And if it should do that, would not the court really be passing an ordinance by itself, a regular system of regulation, in order to make its relief effective and yet safe?

2171 If the court should say that the plaintiff's containers in evidence are all right, I suppose that that would not necessarily include other paper containers; each paper container would have to stand on its own evidence. The effect would be, as I noticed in the contentions of the City here, that the plaintiff would have a monopoly of paper containers, because other companies would either have to bring a suit or wait until an appropriate ordinance

is passed permitting paper containers, and they would all have to qualify.

The other question I have is: What kind of an order would you want the court to make? That is all suggested in what I have said.

Mr. Schaefer: I think each of us can answer that, but the answers will not be the same.

The Master: Well, that in general is what occurred to me. The principal thing I talked about was this question of the court's waiting until the City Council should be given an opportunity to act upon it or whether the court should go ahead and let the City Council say that it will wait for the court to decide what is essentially a legislative matter. The practical effect of all this

2172 would be that if the City Council would pass on it, the City Council would do it within the reasonably near future, and the City Council might pass an ordinance permitting the use of paper containers. On the other hand, if the matter is allowed to remain in court, there is no telling when the litigation might be ended. It might take you several years before the whole thing is finished, and then you might have to go to the City Council after all.

Now, it is just as important from the standpoint of the plaintiff as of the defendants to decide just what the correct procedure here is. If this thing remain in the courts and the City Council stands on the sidelines, it will just remain in the court for a while, and then after you get through you may not be further along than you were in the beginning.

As I worded this question originally, the court has to look at the jurisdictional question itself, whether either side raises it. While this may not be strictly a jurisdictional question, it is a question which is in the nature of a jurisdictional one: the propriety of the court doing anything in a matter that is essentially legislative, and 2173 even if I go ahead and decide every single issue that you have presented or even if the District Court does it, some upper court may, on its own initiative, say that this is a legislative matter, and throw the whole thing out and put you right back to where you were in the beginning.

I thought I would put that question up to you, because it seems to me to be important to both sides. If there is a short way open and it may decide this one way or an-

other and present this very narrow question, maybe that is the way to go. I know at a previous stage of these proceedings there was a time when it seems to me that both sides had decided to pass up the Master's hearings, and we did not have any hearings here for a month or two, when it seemed that the Council was going to pass upon this matter immediately. It seemed to me that both sides then thought that—

Mr. Schaefer: Both sides did not. We never did.

The Master: I mean the Board of Health, when it passed this resolution; then it seemed to me, at least, for a time, that there was some prospect that the City Council might act upon the matter. Proceedings were suspended, I know, at that time.

Mr. Schaefer: No proceedings were possible at 2174 that time. The question there was, when the plaintiff filed its brief, the plaintiff delayed in filing its brief.

The Master: We will put it that way then.

Mr. Schaefer: But the hearings were continued.

The Master: Then we will say the plaintiff thought that possibly the City Council might do something.

Mr. Gariepy: No, the plaintiff did not have any thoughts at all, because the plaintiff had waited three years for the Board of Health to take this matter in its teeth, and when on October 26th it took this action the plaintiff had the right to assume that the Board of Health was going to make some suggestion to the City Council to do something, since it was the guardian of the public health. Apparently the plaintiff or the public or the Master or counsel for the defendants were all mistaken, because the Committee said, "We will wait until the court passes upon it; we will not do anything until the court passes upon the legality of this subject." And there is our status.

The Master: Now, the question is whether the Council's Committee should decide this legislative question itself at the present time or whether even if the court 2175 should go ahead and decide, the Council Committee would have to decide it at some future time. In other words, the court might say that so far as the evidence here is concerned the plaintiff is entitled to something, but it is all the legislative question, and it depends upon the City Council after all to pass the regulations which might be necessary, even if it should be proved that this particular batch of containers would pass muster. I

have suggested the question, the mere fact that you have some proper containers here now does not necessarily mean that future containers, even manufactured by you, would be the same, so that there might be some justification for an inspection measure to be passed which would be operative in the future, so as to see that what you started out with would remain about the same.

Mr. Gariepy: We can all agree, Master, that the court and the Master will not tell the City what regulations to establish, but the court can pass upon the legal questions presented here without prejudice to the right of the City to set up such suitable regulations as will protect health.

That is the burden of the City, to go ahead and establish those regulations to protect public health, the same as they did with the glass bottles. They got regulations to take care of that, and they ought to have regulations to take care of this. But standing by and waiting for something to be done and saying wait until the court does something I don't think is doing us any good. The court stands by and the Committee adjourns sine die and so on, and we just wait.

The Master: Have you any thoughts on this general subject that are more concrete than that? You said you had some memorandum that you might present on it.

Mr. Gariepy: The contention of the plaintiff is that the Court should pass upon the question with regard to the validity of the ordinance concerning the containers coming within the ordinance or whether the ordinance kicks the containers out or prohibits the containers from being used. That question can be decided without prejudice on the part of the City, the defendant, to establish or set up reasonable rules and regulations, such as the United States Public Health Service has already suggested and set up in their model ordinance. The City can set them up or adopt those concerning the matter of control of containers, 2177 paper containers, in the same way as they have regulations now concerning the use of the glass bottle. If they have one, they ought to have the other. There isn't any reason why the regulation should not be established.

That is the beacon light the United States Public Health Service has shown them, and it has taken some action to give them the road to follow. I don't think the Master or the court should tell them just what the regulations should be, but they should be those reasonably to protect and conserve public health.

The Council started a hearing over there, and then stopped. There were several months of talk and argument. The question was raised as to who the Public Health Service was. Some of the members of the Committee didn't even know who they were. They asked Dr. Bunden, I think it was, who they were, and what functions they had. The Doctor explained that they had always followed their lead and their action in October was to continue to follow their lead. He has always been of the opinion that the Chicago Board of Health had safe guidance in following their lead, and a witness for the City here said they got considerable force and backing and prestige in 2178 following their regulations in adopting regulations and ordinances from time to time.

Now, if they did that in the past and got their help in the glass bottle matter, there is no reason why they should not get that same help in the paper matter and why the suggestions they set up in Section 10 should not be considered in this same matter.

I think the Court's province is not in the field of legislation. That would be prejudicial to the right of the City to establish and set up such regulations as the City sees fit and necessary to protect health. That is as far as the court can go. I think counsel will agree that it has no right, nor has the Circuit Court, nor has the Superior Court, to say that this regulation shall be adopted or that regulation shall be adopted.

The Master: We have discussed, I think, in this case, at one stage or another, whether the City might object to paper containers on the ground that it could not effectively regulate them. Namely, they contend that the paper mill is frequently in a distant state, that there might be some things getting into the paper container or the 2179 paper or in the process of manufacture over which the City should have some regulatory power. There has not been anything said in the brief about that subject.

Mr. Schaefer: On the contrary, Master.

The Master: What is that?

Mr. Schaefer: On the contrary, there has.

The Master: About regulating at a distance?

Mr. Schaefer: Yes.

The Master: Of course, there is evidence to the effect that it is not necessary to regulate the first process of manufacture, because all bacteria are dead by the time that

you get to the paraffining process, which is always a local matter.

Mr. Schaefer: Yes, and there is testimony to the contrary.

The Master: The testimony, or one bit of testimony, is that there may be in the wall of the container dead bacteria, and if there is any substantial amount of absorbency the dead bacteria might get into the milk and set up a serum. That is Dr. Arnold's testimony.

Mr. Schaefer: No, I do not agree with you, Master. I don't know whether you noticed it or not, but no-2180 where in the brief do I refer to Dr. Arnold's testimony. I refer to the testimony of Dr. Sanborn.

The Master: What does he say?

Mr. Schaefer: I don't have it spelled out here, but I refer to the page.

The Master: What, generally, is your proposition?

Mr. Schaefer: Generally, Sanborn says the sanitary condition of the paper mill is of the most important factor in the manufacture of paper containers, and so do the others say that.

The Master: On what page of your brief is that?

Mr. Schaefer: From pages 45 to 47. Dr. Sanborn testified to this, as I recall; that in his opinion, in the interest of public health, standards governing the production of paper board for use in paper milk containers and governing the subsequent processing and handling of that paper board until the container is filled with milk should be formulated, adopted and enforced by public health authorities.

The Master: Would your position be that in no circumstance, no matter how perfect a paper container might be made to appear, would it be proper to market such paper container, because of the fact that the City does not have any jurisdiction in, say, the State of Massachusetts?

2181 Mr. Schaefer: No, that would not be our point.

Our point would be this: whether an ordinance is valid or invalid, on the grounds that are involved in this case, depends upon whether or not there are differences between the permitted product and the prohibited product, which are reasonably related to the public health. Here is the difference. The sanitary condition of one container can be ascertained—and this we set forth in our brief—can be ascertained by control at the spot where the con-

tainer is filled with milk, and the testimony of plaintiff's witnesses is that you can produce a sterile container by control there.

Now, we cannot—of this I am convinced—we cannot be forced to permit a container which has a different characteristic, that is, there is a difference which is reasonably related to the public health. The one you can control at the time it is filled with milk; the other you cannot. From the testimony of plaintiff's witnesses there is a difference which squarely relates to the public health.

Here in our brief we have quoted Dr. Prucha on the inspection of mills:

2182 "Milk sanitarians should inspect paper mills and check on the pulp."

The Master: What page is that on?

Mr. Schaefer: Forty-six.

The Master: Yes.

Mr. Schaefer: And we refer to Dr. Sanborn all the way here. And here is a long quote from Prucha. It is all there. The argument is not that we have not any police power in Massachusetts at all. We will worry about that if, as and when the legislative body wants that. I would not take the position that we did not have. "There are decisions that say we do not. I would not concede that those decisions are sound law and I do not concede it. I those decisions are sound law, then we have no right to inspect the plant of the plaintiff here at all. If *Rockford v. Hay* is the law of Illinois, and I don't think it is, and all of us agree on it—but I am not talking about that. I am talking about the differences in these products that are related to the public health. Now, one is absorbent, one is not absorbent. You don't need to go beyond that difference, it seems to me. There is a difference there. And when a difference exists, the legislative body makes
2183 the choice. The same thing applies to transparency.

The Master: Your position is that the City Council could enact an ordinance providing for inspection and hire the inspectors to go out to Massachusetts to inspect and that if a container is to be permitted to be used in Chicago the container people would have to grant access to its plant in a distant state, if the paper container company wanted to have its container used in this city, is that correct?

Mr. Schaefer: Well, I do not have to take a position on that now. That might be my position if that time came.

My point is that we cannot be compelled to permit the use of an article that requires, on the testimony of plaintiff's witnesses, a different type of inspection.

Now, on these other things—while I am talking I might as well go through these things that have been running through my mind—there is, I think, a pretty profound misconception of the United States Public Health Service and its relation to the Chicago ordinance, and that exists pretty generally. Everyone says we have the United

States Public Health ordinance. Actually, the outstanding characteristic of the United States Public Health Service ordinance is one that we do not have. That is that the United States Public Health Service has two grades of milk, Grade A and Grade B, and their system of enforcement is by degrading milk.

The Master: By degrading?

Mr. Schaefer: That is right. If a Grade A man fails to comply or if a Grade A farmer fails to comply, he is made a Grade B farmer and his milk is sold as Grade B, where, while it is not spelled out in the ordinance, there is a price differential. So if a dairy fails to comply, they simply refuse to let them sell Grade A milk and they sell Grade B milk. So you can see what happens to their customers.

That is the outstanding feature of that ordinance. That was the novel thing in the United States Public Health Service ordinance. The City of Chicago did not follow that. And there is a number of other places where we departed substantially from the United States Public Health Service ordinance.

You said the usual course was to follow the United States Public Health Service ordinance. That is not so.

We follow that or not as the City Council and the Board of Health see fit. The United States Public Health Service is simply and solely an advisory body. We follow that no more than we will follow the recommendations of the University of Chicago or the University of Iowa or any other body.

The Master: Let us put it this way. When I say follow, I mean in point of time usually the lead is taken by the United States Public Health Service, is it not?

Mr. Schaefer: No, I don't think so.

The Master: What is that?

Mr. Schaefer: I would not go that far. For illustration, we have been requiring the use of Grade A cream for

the manufacture of ice cream in the City of Chicago for years. Now in the future the United States Public Health Service is going to require the use of Grade A cream in ice cream, but they do not require it now.

The Master: Let us put it this way. In some matters the lead is taken by the United States Public Health Service, and that is a very persuasive influence on the municipalities as to whether they should or should not adopt a particular measure, that sometimes particular measures may not be adopted by the municipalities until the 2186 United States Public Health Service recommends them. I say particular measures. Some measures. In others the City may not wait upon the United States Public Health Service, but in some cases, if there is some doubt about them or if the municipality for any reason does not feel like adopting those measures, then the United States Public Health Service takes the initiative and says they are all right; whereupon, on those particular instances, the City may follow their lead.

So without making a general statement as to all matters, that the Public Health Service takes the lead and the municipalities wait upon them, I say as to some matters that is the case. I think you will agree to that.

Mr. Schaefer: Oh, yes, I agree with that, because that does not—

The Master: I say, it is part of the practice in this health legislation.

Mr. Schaefer: There are about four hundred cities that make any effort at all to follow the United States Public Health Service. The vast majority of eight hundred thousand or I don't know how many hundred thousand cities make no pretense of following the United States 2187 Public Health Service. Now, actually—well, this is way off the record, so I won't go into it.

The Master: Well, isn't there some evidence here by Dr. Bundesen that that is the practice?

Mr. Schaefer: It does not make any difference, anyway. Dr. Bundesen's evidence is there for what it is worth. Whatever I say is not evidence, any more than what Fred said a few minutes ago.

The Master: Dr. Bundesen said that has been the practice here, and now that the Public Health Service has said it, he says it.

Mr. Schaefer: But you know, as a matter of law, what effect the United States Public Health Service has.

The Master: It has no effect.

Mr. Schaefer: Of course.

The Master: But I am talking about practice now. The only evidence in the record now, as far as I know, is Dr. Bundesen's statement.

Mr. Schaefer: I don't want to quarrel with what is in the record. If that is in the record, all right.

The Master: Am I right on that, Mr. Gariepy?

Mr. Gariepy: That is right, Master. He said he objected to the use of the paper container in the city 2188 until the United States Public Health Service had recognized it, and as soon as he found out that they had recognized it he brought the matter before the Board for attention.

The Master: And didn't he also say that that was the usual practice in this city?

Mr. Gariepy: That is right, he did say that. He also said before the Special Council Committee that they followed them in the past.

Mr. Schaefer: That is not in the record in this case.

Mr. Gariepy: He said in the other room, on cross examination, that as soon as the Public Health Service had seen fit to recognize this, he recommended that the City of Chicago follow that practice, that he did that in the past and has continued to do so.

Mr. Schaefer: Whatever is in the record, is in the record.

The Master: Have you prepared anything on this question?

Mr. Schaefer: Yes. On this question of a new device, it occurred to me now, while you were talking this morning—it had not heretofore—that you must consider legislative non-action as the equivalent of legislative action. I 2189 think the two are almost precise equivalents. I had not thought about this before and I have not thought it through, but it seems to me there is the answer to the particular problem that is bothering you. I think legislative action and non-action are synonymous. That is, non-action is the same as affirmative action the other way.

And I think there is no doubt of this: A police regulation which is valid today may, because of changed conditions, economic or otherwise, become invalid tomorrow, and there are cases so holding, the leading one being Chief Justice Hughes' opinion in that *Abie v. Weaver*, which in-

volved a Nebraska statute requiring banks to contribute to a state fund to insure their deposits. That went to the Supreme Court and its constitutionality was sustained. When the depression came along, it was found that the fund was not actuarially sound, that is, it was not adequate to insure deposits. This case that I just referred to went to the Supreme Court, and while the statute escaped invalidity, because the state had provided another method of liquidating, still the inference is unmistakable that the court would have held it bad even though it had theretofore held it good, and the Chief Justice said so.

2190 The Master: What is the citation on that case?

Mr. Schaefer: 75 Lawyers' Edition, 691.

There was a rent case that came up after that first group of emergency rent cases in Washington in the District of Columbia during the War. The first group of cases sustained the rather drastic regulations. Another case came along involving the Chaselton Apartments, or some such building, and the regulation was held invalid, the conditions having changed.

Mr. Rall: And another case is that of the Louisville & Nashville Railroad, a grade separation case.

Mr. Schaefer: That is right.

Mr. Rall: Where the Tennessee statute requiring an equal division, the railroad was sustained, and about ten or fifteen years later the same statute, applied to changed conditions, was held, in the opinion of Justice Brandeis, because of the changed conditions, to be unconstitutional in its application. I can send over the citation. But we agree, I think, as to the general rule, that the court will consider that this ordinance is reenacted every day that the City fails to make a change in it.

Mr. Schaefer: I think so. It is a continuing piece of legislation. I am going to think about that a little

2191 bit. It is an epigrammatic statement.

The Master: You may go ahead.

Mr. Schaefer: One thing that may be significant as to the City's position is that a question rather like this one came up before Judge Sullivan in the two cases that were before him, and he asked for briefs on this question, whether since the thing involved was an ordinance of the City of Chicago the demands alleged by the two complainants to be made upon the president and members of the Board of Health were of any significance or whether a

demand should have been made upon the City Council to change the ordinance.

In our brief there we took the position that the allegations as to any demands were superfluous, that they could be disregarded, that the validity of the legislation could be questioned without any precedent demand at all. That has been our attitude. Certainly I agree with Fred that neither you nor the court can prescribe regulations.

The Master: Neither can?

Mr. Schaefer: That is right.

The Master: But should the court do something that is not effective for the purpose?

2192 Mr. Schaefer: That goes to the way you decide the case, it seems to me, and not to whether or not you have the power to prescribe any regulations.

The Master: I am asking that now. I have to assume that the court's order can be effective. If the court should say that the plaintiff is right, what effect would it have?

Mr. Schaefer: Well, take this case. A statute in Illinois prohibits crimes against children, sex crimes against children. It was held invalid. A man who had been indicted under that statute and found guilty escaped punishment. The policy of the court and the common sense of the court would tell them that some punishment was necessary for that offense, and yet the court, the legislation being invalid, did not hesitate to hold it invalid on the ground that with that statute invalid there was no punishment for that particular crime.

That is just an example that leaps into my mind, and that happens often. Suppose the workmen's compensation legislation is held invalid. The mere fact that the court may think legislation on that subject was highly desirable does not influence the court one way or the other in 2193 deciding the question of validity. I think that what the court has to consider is simply that bare question of validity and invalidity.

The Master: Let me put it this way. You said in your brief that this whole matter is a legislative question, that this is all a question of legislative discretion.

Mr. Schaefer: That is right. If there are differences, it is a question of legislative discretion. If there are no differences—

The Master: All right. You say it is a question of legislative discretion. Now you say this whole subject of

regulation of milk containers, glass or otherwise, is a matter of legislative discretion. If that is the case, how do you reconcile that with your statement that the Court should decide it

Mr. Schaefer: The validity of the legislation is now being attacked upon the ground, in substance, that the legislation discriminates against the paper container. My point is this; that so long as there are differences that are related to the public health, that is a legislative question. If there are no differences relating to the public health, then the ordinance is discriminatory and invalid.

2194 Here is a case a good deal like it. Take that Marysville Oil Tank case that was cited, the Gasoline Tank case, where the ordinance of the city required gasoline tanks to be below ground. The oil company, whichever one it was, brought in evidence to the effect that they have stored oil above ground in this municipality and others, and there has been no harmful effect, and so on. But the court found there were differences in sustaining the requirement that gasoline be stored below ground. They would not have had to worry, it seems to me, in deciding that case, about whether regulations for the storage of gasoline above ground were necessary or not.

The Master: Have you prepared any memoranda on this thing that you want to leave with me?

Mr. Schaefer: I have not, no, sir.

The Master: You just looked up those cases to which you referred?

Mr. Schaefer: Yes, I will give you those. There are one or two others.

The Master: Is there anything more you want to say?

Mr. Schaefer: There is this that I want to say. I want to urge you to read the testimony referred to here. I did not set it out, because I did not feel it was right
2195 to set it out, but it is there and it is in the plaintiff's testimony.

Mr. Rall: The plaintiff's answer is probably so conclusive to that point that your Honor has not looked at the other.

The Master: As I say, I read the briefs. I have not studied the record.

Mr. Rall: If it is true the City contends that in order to have adequate inspection and adequate control they must go to the paper mill, our contention in that regard is that

the very witnesses who talked about inspection of paper mills testified that the City had just as much control by means of inspecting the product after it got here in the case of paper as in the case of glass.

It is true that if you find contaminated paper, in order to trace it to its source you might have to go to the paper mill, but the City is not interested in tracing the source of it. The City is interested in the negative thing of stopping it. If it has got the power and the means at hand for stopping it, it will be up to the people to see that their containers are kept uncontaminated.

The Master: Of course, I might say one thing. 2196 You gentlemen seem to fry to draw a parallel between paper containers and glass containers which does not exist. There has been frequent argument on the point of, "Well, why can't you go ahead and examine the manufacturing plant of the glass bottle?" I would say that it is not necessary to do that, because we all know that glass is made under such extreme heat that no bacteria could be there. So that the only form of regulation which suggests itself is to see that the bottle, after it gets here, is clean and kept clean. So that that is a form of regulation that they have there, that of bottle cleaning.

Now, then, in the case of the paper containers, which are used only once, you do not have to have any cleaning, after they are here, but there the regulation which suggests itself is to see that it is clean when it gets here.

Mr. Rall: That is right.

The Master: Now, that is the difference between the two. You argue in your brief that the amount of bacteria which may be in a paper container at the time that it gets here is no greater than that which may be found in a glass container after it has gone through the cleaning process. 2197 You say there is just as much bacteria or less in your container when it gets here and is used once as there is in the glass bottle while it is in the course of being used. That is the parallel you draw. I think that there is a comparison that may be the subject of some consideration.

Mr. Rall: On the point that is raised about the necessity of going to the mill, it seems to me that that is to be answered by determining whether or not there are tests after the paper containers reach the jurisdiction, so to speak, which will indicate whether or not they are contaminated.

It is our position that while the tests are different than they are for glass bottles after the glass bottles are cleaned, they are just as effective.

The Master: Anything else?

Mr. Gariepy: Adding to where your Honor left off, you spoke about just as effective. According to the evidence it is more effective and they are more severe tests. In other words, the mere fact that the paper container lends itself to a more severe test is not any reason why the paper container should be prejudiced or discriminated against, when the glass bottle in its rounds of use lends itself to exposure. As the City's own witness testified, if they found anything wrong with the paper they could stop it, and all of the witnesses said they could stop it. In the same way they could stop the use of glass bottle or the rinsing or the washing process of the glass bottle at the dairy.

As far as control is concerned, there is no evidence in the record whatever that the City won't have adequate control, if they follow out the suggestions that have been followed by other cities. Witnesses here have told us that they have tried out those things for months and years. There is no evidence in the world that the City is going to be prejudiced or the public health in any way imperiled if they resort to these methods. The City has not shown that these methods are not sound and the tests are inaccurate. In fact, Dr. Arnold says these tests were true, but they were misrepresented.

Mr. Schaefer: No, he didn't say that.

Mr. Gariepy: He said he didn't agree with their reading of them.

Mr. Schaefer: Not about these tests. The tests you are talking about are the disintegration tests and the rinse tests.

Mr. Gariepy: Yes. But those are the only two tests on the containers. What other tests are there?

Mr. Schaefer: You misunderstand what Arnold was talking about. You were asking him about Prucha's experiments.

Mr. Gariepy: I asked him about both, the disintegration tests and the rinse tests.

Mr. Schaefer: The only way to get straight on that is to read the record.

The Master: What is the point you have on that?

Mr. Schaefer: The point I have on that is this. These

witnesses jumped all around on whether or not inspection was necessary. Sanborn was, I think, the only leading witness for the plaintiff. The plaintiff may disagree with me. They tried to get Sanborn to run away from his original testimony, that inspection at the mills was necessary. I have set out where he said that here in the transcript by reference. I have not repeated all of the testimony. He testified it was more expensive to produce sanitary paper than paper of a lower sanitary quality. Here is what he said about the disintegration tests and about the necessity of mill inspection. He said that while disintegration tests could be an index to the sanitary condition of manufacture in the paper mill he did not think it advisable, from a sanitary or public health point of view, to rely alone upon disintegration tests to determine the sanitary quality of the paper board.

Sanborn testified flatly to the necessity of mill inspection. Prucha wrote flatly that mill inspection was necessary for the purpose of determining—

The Master; Prucha said that?

Mr. Schaefer: I read it just a minute ago. Prucha in October, 1937, said this:—

The Master: In 1937?

Mr. Schaefer: (Continuing.) —“Milk sanitarians should inspect paper mills and check on the pulp.”

The Master: They should.

Mr. Schaefer: All right, they should.

The Master: As I remember his testimony here, it was not to that effect.

Mr. Schaefer: Sure, he was running away from it. They were all running away from it, because they saw where it would lead to.

The Master: His testimony was that it would be immaterial.

Mr. Schaefer: To inspect that one mill.

The Master: Any mill.

2201 Mr. Schaefer: No, not any mill.

The Master: I remember asking him the question, whether it would be all right to manufacture this paper out of water from the Sanitary District channel. Sure, he said, it would be immaterial.

Mr. Schaefer: If you are going to consider that, read everything he has said.

The Master: That goes to his credibility.

Mr. Schaefer: Yes.

The Master: Your point is that Mr. Gariepy is mistaken in his statement that there is no evidence whatever in the record to the effect that inspection at the mill is desirable or necessary. You say there is such evidence in the record and it is supplied by the direct oral testimony of Dr. Sanborn and those writings of Dr. Prucha.

Mr. Schaefer: That is right.

The Master: Both plaintiff's witnesses.

Mr. Schaefer: That is right. Now, in addition, you seem to be under the impression that the record shows that these containers are more sanitary than the glass bottle.

The Master: I didn't say anything to that effect.

Mr. Schaefer: Then let me say that plaintiff's 2202 attorneys seem to be under that impression. Actually the record shows just the opposite. The only testimony here as to the condition of paper containers in actual use is of this fellow Woodman from the City of Evanston, who came down here and testified as to the rinse tests that he made on the containers right at the plaintiff's plant. There were about 101 of those, and there were about the same number on the American Can containers from the River Forest Dairy. Now, he testified specifically with reference to plaintiff's containers that 93 of the 101 examined had a bacterial count above the permissible maximum of 1,000. That is, seven per cent running above—

Mr. Gariepy: Who said that?

Mr. Schaefer: Woodman said that.

Mr. Gariepy: You are wrong.

Mr. Schaefer: I am not wrong.

Mr. Gariepy: Look at our reply. I quoted it in our reply brief.

Mr. Schaefer: I will ask Owen, did he say that or didn't he?

Mr. Rall: You said that he said that 93—

Mr. Schaefer: No, he said seven per cent.

Mr. Rall: You misspoke yourself.

2203 Mr. Schaefer: Oh, I am sorry. He stated that seven per cent were above the permissible maximum.

The Master: All right. I thought you said 93.

Mr. Schaefer: That was my error. The actual count on the glass bottles does not show anywhere near that high. Those were actual counts in the City of Chicago. That is all the evidence there is on actual conditions. While he did not give us the specific information on the

other type of paper container, the American Can container, he did say they ran the same, and on that statement I did not ask him for the file he said he had with him. You asked if I was satisfied with that and I said yes, they ran the same. That is the evidence as to the actual conditions. That is not taking samples from somebody, going to the paper mill and disintegrating them. Those are things as they come from the dairy.

The Master: I will have too look at the briefs. Both of you have covered your positions. Now, if you will leave with me, Mr. Gariepy, that memorandum you have with you today, and if you want to submit your little memorandum as to those cases I will be glad to consider them.

I thank you very much for coming in this morning.

I just thought I would ask you these questions which 2204 were running through my mind. I think it has been helpful. You have brought some things to light.

Mr. Schaefer: Would you like oral argument on the whole thing?

The Master: I will read the briefs again and then if I think oral argument will be helpful I will let you know.

Mr. Schaefer: All right.

The Master: Now, off the record.

(Discussion had off the record.)

The Master: That will be all, gentlemen. Thank you for coming in.

(Whereupon, the conference was adjourned.)

2205

• • (Caption) • •

Stenographic report of discussion had at the office of United States Master in Chancery Jacob I. Grossman, Suite 753, United States Court House, Chicago, Illinois, at 2:30 p. m., Friday, April 26, 1940.

Present:

• Mr. Fred A. Gariepy and Mr. Owen Rall, representing the plaintiff.

Mr. Walter V. Schaefer, representing the defendants.

The Master: I noticed in the objections of Mr. Schaefer that he raised some question concerning the record

in this case. In order to get that straightened out, I thought it would be best if we could sit down here and get a statement of record.

Now, I have made part of the record—or I am making a part of the record—the conference that we had here on March 9, 1940, comprising pages 2161 to 2204.

Mr. Schaefer: Well, if the Master please, I don't believe that the report of that conference should be a part of the record. It was denominated an informal conference.

The Master: By the reporter.

Mr. Schaefer: By the reporter, yes, sir, and by the parties, because, after that hearing was had, we discussed whether or not it should even be written up, and it was written up only for convenience of the parties. Such was my understanding.

There are statements there—when I got the transcript of that conference, I ran through it. I noted the remarks—my observations concerning statements made by you, Mr. Gariepy and Mr. Rall. There were a number of things—a number of statements made—which I did not challenge, because I didn't consider that the hearing was a formal hearing and to be a part of the record. And, also, there were statements made which were not evidence, made by the attorneys for the parties. Now, I made some; Fred made some, and Owen made some.

The Master: Just let me complete this: The point I am getting at is, that whatever has occurred in Court, is something of which the Court can take notice, and if that is so, a transcript of what occurred can properly be made a part of the record.

Now, if some lawyer made a statement which is not evidence, of course it has no greater effect than a statement made by him during the taking of evidence—the mere fact that the lawyer made the statement.

Now, I think, however, we can clear all that up today by an agreement as to the facts that you have in mind, namely, the things I am talking about are the facts with reference to the pendency of the ordinance before the city council, and the chronology that you referred to in this memorandum that you handed me yesterday, or the day before yesterday.

Now, I—

Mr. Schaefer: (Interrupting.) Could we take that up

first and see if we can obviate that report being part of the record?

The Master: Well, I don't think the report being a part of the record hurts anybody. I think it is rather clarifying on the position of the parties on this thing. It is the same as the briefs in some respects, and the only thing that 2208 you have in mind here is the dates when certain things occurred, and also whether certain things did occur.

Now, you have set that up—

Mr. Schaefer: (Interrupting.) And also the materiality or immateriality of those occurrences, and it seems to me it is quite one thing, when we are discussing a matter informally between us, as a matter of mutual discussion, and another thing to have that as a part of the record.

The Master: You are referring now to those occurrences before the city council committee?

Mr. Schaefer: Yes, sir.

The Master: Well, if they are agreed that the chronology that you have presented here is correct, you don't object to that going into the record, do you?

Mr. Schaefer: Only on the ground of immateriality as to the fact that they are the facts—I have no objection to that—but I cannot see, for the life of me, how it makes any difference.

The Master: Well, I think it does. I think, as I have stated in my report, the fact that the matter is pending before the city council, is something of which the Court may take notice, and may consider in disposing of 2209 this case. That is why I am trying to get the record straight on it. I have referred to that, and I think there should be some factual basis in the record, and that is what I am trying to clear up.

Now, off the record here a minute.

(Discussion outside the record.)

The Master: Let this be agreed, then, as to the chronological statement. I am putting it into my report, and it is going into the record by agreement:

In October of 1939, the United States Public Health Service amended its model ordinance to add paper containers (Plt's Ex. 92, Defts' Ex. 29, Rec. 1567). Thereafter, on October 16, 1939, the Chicago Board of Health recommended to the city council similar action. In the meantime, hearings in this suit had begun, and were being held at such times as expert witnesses from other states

could appear. The defendants' case was closed on October 13, 1939. On October 16, 1939, the Board of Health made its recommendations to the city council. On October 19, 1939, the defendants requested and were granted leave to reopen proofs and submit further testimony. Accordingly, on October 23, 1939, the defendants offered further evidence, and again closed their case. The plaintiff completed its proof on October 26, 1939. The recommendation of the Board of Health was referred by the council to its committee on health. While the matter was under consideration by the committee, plaintiff's brief was not filed before me. On November 22, 1939, the committee on health voted to defer action upon an amendment to the ordinance pending the outcome of this case. Thereafter, briefs were filed in the case at bar, the plaintiff's brief on December 19, 1939, the defendants' brief on January 27, 1940, and the plaintiff's reply brief on February 15, 1940. Further proceedings were had in the case on March 9, 1940, the transcript of which is made a part of the record. Additional memoranda based upon those further proceedings were filed on March 15, 1940, and on April 13, 1940. On April 26, 1940, which is today, the record was reopened for the purpose of formally incorporating the above facts in this record.

Now, is there anything further that ought to go into this record? Is there anything that either side here has raised in the objections which go merely to the question of the record?

Mr. Gariepy: I have got one suggestion I would like to put into the record at this time, before we take up these suggestions that are filed by counsel and by plaintiff.

Within the last two weeks, it is a matter of common knowledge that homogenized milk is being sold in the City of Chicago, and being sold by and with the permission of the defendants. The Master, in his report filed here some 11 or 12 days ago, made reference to the matter of the cream line, and he made reference to the matter of the fact that the cream in the paper bottle became diffused, and did not concentrate or localize itself. The homogenized milk, by its very definition, is milk where the cream line is not observable, and where the milk is of the same quality throughout, or the cream is diffused throughout, so that it is one, continuous quality of milk from the bottom to the top.

If the city of Chicago and the Board of Health, the defendants, permit the sale of homogenized milk at this time—and homogenized milk is, as the name suggests, milk where the cream line is not observable, even in glass 2212 containers, and the cream is diffused equally and evenly throughout the milk—then the comment in the Master's report in his findings, and reasons therefor given, are of sufficient importance to the plaintiff for the plaintiff to ask leave at this time to offer proof that homogenized milk is now being sold, and has been sold, during the past 15 days, and was not at any time being sold during the pendency of this law suit before the Master, so we were not negligent or derelict in our duty in not presenting the point, and could not have presented it, since it was not a fact in being at the time. The Master has given those factors significance in his report, and I think we ought to be given an opportunity to meet them.

The Master: Do you agree that that kind of milk is being sold, or do you agree in the statement, Mr. Schaefer?

Mr. Schaefer: Well, I agree that homogenized milk is being sold in the City of Chicago without interference by any of the defendants. Homogenized milk, however, is being sold as such—labeled as such—and the homogenized milk which is being sold is required by the State Department of Public Health to be of such a quality, that 2213 samples taken from the top of the bottle, and from the bottom of the bottle 48 hours after the milk has been bottled, do not show a variation in the butter fat content greater than a small percentage of one per cent.

Mr. Gariepy: With regard to the State Board of Health, there is nothing in the ordinance on homogenized milk. Perhaps there would be something in the regulations of the Board of Health recently passed in the last 30 days to legitimize the sale of this milk, so to speak.

The Master: At any rate, this homogenized milk is being sold, as Mr. Gariepy states, with the exception, as you state, Mr. Schaefer, that it is labeled and sold as such, isn't that right?

Mr. Schaefer: That is right, and that it meets certain requirements.

The Master: Yes. Is that agreeable with you?

Mr. Gariepy: Yes.

The Master: So that the record now shows the fact with reference to homogenized milk.

Mr. Gariepy: There is nothing in the ordinance, you agree with me on that—

Mr. Schaefer: (Interrupting.) That is right, and there has been no regulation of the Board of Health.

2214 Mr. Gariepy: (Continuing.) —passed to permit its sale. It is just being done.

Mr. Schaefer: No, by virtue of state regulations.

The Master: At any rate, it is being sold; that is all we are interested in. We don't care how it is being sold, but it is being sold.

Mr. Schaefer: Yes.

Mr. Gariepy: In glass bottles—let's put that in, too.

Mr. Schaefer: Put that in my statement.

Mr. Gariepy: In glass bottles.

The Master: Yes. Now, is there anything further that is to go in the record?

Mr. Gariepy: You agree with my statement, also, Mr. Schaefer, that at the time of the trial that was not permitted, so we had no opportunity to go into that matter?

Mr. Schaefer: Yes, I agree to that.

The Master: Anything further?

Mr. Schaefer: To be added?

The Master: Anything further to go into the record?

Mr. Schaefer: No, sir.

The Master: Let the record show proofs closed.

Proofs closed.

2308 And on, to wit, the 24th day of May, A. D. 1939, there was filed in the Clerk's office of said Court certain Depositions, originals of which are in words and figures following, to wit:

2310 IN THE DISTRICT COURT OF THE UNITED STATES.

• • (Caption—316) • • •

(Filed May 24, 1939, Hoyt King, Clerk.)

Deposition of Paul V. Keyser, Jr., a witness in behalf of plaintiff, taken, pursuant to notice to take depositions served on the defendants April 15, 1939, at the office of Mudge, Stern, Williams & Tucker, 20 Pine Street, New York, N. Y., on Tuesday, April 25, 1939, commencing at

2:00 o'clock, p. m., before Irvin Taber, a Notary Public in and for the County of New York, State of New York.

Appearances:

Gariepy & Gariepy, Esqs., Attorneys for Plaintiff,
by Owen Rall, Esq., of counsel.

2311 Barnet Hodes, Esq., Corporation Counsel of the City
of Chicago, by Walter V. Schaefer, Esq., and
Charles P. Horan, Esq., Assistants Corporation
Counsel.

PAUL V. KEYSER, JR., a witness of lawful age, having
been first duly sworn by the Notary Public, testified as
follows:

Direct Examination by Mr. Rall.

Q. Will you state your name, please?

A. Paul V. Keyser, Jr.

Q. And where do you reside?

A. At 142 West 11th Street, New York City.

Q. And your business address?

A. Is 412 Greenpoint Avenue, Brooklyn, New York.

Q. And, for the purpose of the record, your age?

A. Thirty-two.

Q. And what is your occupation?

A. I am a chemical engineer.

Q. Connected with whom?

A. The Socony Vacuum Oil Company, Incorporated.

2312 Q. Is that sometimes commonly called the Socony
Vacuum Corporation?

A. It is.

Q. How long have you been so engaged?

A. Nine years.

Q. And previous to that time were you engaged in any
business or profession?

A. No.

Q. What briefly has been your education?

A. I graduated from M. I. T. in 1929.

Q. That is the Massachusetts Institute of Technology
at Boston?

A. The Massachusetts Institute of Technology in Cam-
bridge, Massachusetts.

Q. Yes, in Cambridge? And with what degree?

A. With the degree of Bachelor of Science in Chemical Engineering, and, in 1930, with the degree of Master of Science in Chemical Engineering.

Q. Previous to your entry into the Massachusetts Institute of Technology you had a high school course?

A. I had a high school education in Washington, D. C.

Q. And also a grade school education?

A. Yes.

2313 Q. At the same place?

A. At the same place.

Q. Now, you referred to a Master of Science degree. What additional schooling did you take which authorized the granting of that degree?

A. The course occupied one full year and followed the curriculum outlined by the Institute, which included advanced work in the general field of chemical engineering and a practice school which involved six months' training in various industrial organizations.

Q. And did that work follow without interruption your Bachelor's degree?

A. It did.

Q. And you then entered the employ of the company by whom you are now employed?

A. I did.

Q. What briefly has been your experience since entering the employ of the company?

A. I have been employed constantly in the general laboratories of the corporation.

Q. And where are those laboratories located?

A. Located at 412 Greenpoint Avenue, Brooklyn.

Q. How many men are now engaged in that laboratory?

2314 A. Approximately 160.

Q. In the laboratory?

A. In this division of the laboratories.

Q. State briefly what the business of the company is.

A. The company is in the petroleum business, and its scope includes the production, refining, and marketing of petroleum products of all types.

Q. Will you name a few of them?

A. Amongst which might be mentioned fuels, lubricants, processing materials such as waxes and so forth.

Q. Paraffin wax, I understand, is a product resulting from refining?

A. That is correct, of petroleum.

Q. Of petroleum. And where does your company manufacture—at what refineries does your company manufacture paraffin wax?

A. Paraffin wax is manufactured at our Long Island City refinery, amongst others.

Q. Do you know whether or not the paraffin wax manufactured at that plant is sold to the Dean Milk Company and shipped to Chemung, Illinois?

A. Yes, it is.

Q. Have you made an investigation to determine
2315 what the quality is of the paraffin wax so sold and shipped?

A. I have.

Q. Will you state what it is?

A. The paraffin wax manufactured at the Long Island City refinery and shipped to the Dean Milk Company is refined paraffin wax with a melting point of 125 to 127 degrees Fahrenheit, A. M. P.

Q. Is that capital A, capital M, and capital P?

A. Capital A, capital M, and capital P.

Q. What do those initials stand for?

A. American Melting Point.

Q. Are you familiar with the process of manufacturing this wax?

A. Yes.

Q. Will you describe it, particularly with respect to the sanitary conditions under which it is manufactured?

A. Yes. Paraffin wax is extracted from a distillate removed from the crude by distillation.

Q. When you refer to "crude," it is crude petroleum?

A. Crude petroleum.

Q. Crude oil?

A. Crude petroleum oil. Prior to the removal of the wax the distillate is treated with sulphuric acid to remove
2316 certain unsaturated bodies. It is then pressed, sweated, further treated with acid and washed with caustic soda, passed through a filter and finally molded into cakes.

Q. When you refer to "sweating", of what does that process consist?

A. The sweating process may be described as a fractional crystallization whereby the paraffins at the proper melting point are removed from the materials at other melting points and from the oil admixed with the wax at that point in the manufacturing operation.

Q. Can you tell us briefly how that sweating is accomplished?

A. The sweating is accomplished by introducing the slack wax, which is a mixture of wax and oil, into pans of rather large area but shallow, where, by a careful control of temperature, the low melting point of the material and the oil is selectively drained from the mass of solid crystalline wax.

Q. And that which remains is the paraffin wax that you are referring to?

A. That which remains after the sweating process has been carried out a number of times, over and over again, that is, is the paraffin wax. The wax, after a complete
2317 sweating operation, contains only a trace of residual oil, and this oil is completely removed by the final filtration.

Q. How is this filtration accomplished?

A. This filtration is accomplished by percolating the molten wax through bone black.

Q. Through what?

A. Bone black.

Q. Is that a substance?

A. Bone black is a very pure form of carbon.

Q. You speak about it being molded into cakes. Does that process occur after the filtration process that you have described?

A. Yes.

Q. Now, during the course of this manufacturing or refining operation is heat applied in the various stages?

A. Heat is applied in the various stages in order to— in the first place, to separate the paraffin distillate from the crude oil, and, secondly, to maintain the subsequent wax oil mixtures and eventually the pure paraffin wax in a molten state.

Q. Immediately prior to its being pressed into cakes what is the temperature at which the paraffin is maintained?

A. Approximately 160 degrees Fahrenheit.

2318 Q. Well above the melting point?

A. Well above the melting point.

Q. Of what materials are the machines made which are used in this manufacturing or refining process that you have described?

A. The entire system is carried out quite generally in

steel or cast iron equipment, all of which is enclosed, the process being in the early stages largely a continuous one.

Q. That is, without manual assistance the machinery does the work?

A. No human hand at any time touches any of the material throughout the operation or process.

Q. And does that apply to the entire process that you referred to?

A. It does until the cakes are finally—of the finished wax are finally removed from the molding machine and packed in suitable containers, which is a hand operation.

Q. And in what form is the paraffin wax that is shipped to Chemung, Illinois, by your company; that is, when it comes from the molding machine?

A. It is in eleven-pound cakes.

Q. And about what size are these?

A. Approximately sixteen inches by eleven inches
2319 by an inch and a half to two inches thick. That is the approximate size of the cake; I don't recall the exact dimensions.

Q. Now, you referred to that being removed from the molding machine being a hand operation. Do you mean that someone actually picks up the cake or lifts it from the machine, or just what is that process?

A. The cake is actually lifted from the mold and packed into a container.

Q. And just how is that process accomplished? When you refer to its being packed, are you familiar with the packing of this specific paraffin that we are discussing?

A. The paraffin is removed from the molding machine and immediately packed in paper-lined burlap bags.

Q. Right next to the paraffin is what?

A. Is paper.

Q. Of what kind? Is it a wax paper or parchment of some kind?

A. It is a treated craft which is sealed to the exterior burlap bag.

Q. Is that paper kept under sterile conditions in your plant?

A. Yes, in so far as that is practicable.

Q. Just how is that accomplished?

2320 A. You have reference to the keeping of the container?

Q. Yes, of the container into which this wax in these eleven-pound cakes is packed?

A. Well, the bags as received are in sealed or closed packages, and they are kept in that shape in rooms wherein practices of cleanliness are observed, and these packages are not opened, nor are the bags opened up to receive wax, until immediately prior to the introduction of the wax into the paper container which comes in contact with the wax, being inside of the burlap bag.

Q. What is the practice with respect to the cleanliness of the operator who performs this operation of removing the wax?

Mr. Schaefer: Well, I object to that.

Mr. Rall: You may answer subject to the objection.

A. Why, the operators who remove the wax from the molds and place them in the paper containers are men who are regularly cautioned to observe good practices with respect to personal cleanliness and particularly to keep their hands free from dirt, and during the operation they do not handle any material other than the wax and the receiving bags.

Q. You referred to "good practices." Will you state, subject to the same objection that has been made, 2321 specifically what the instructions to these men are?

A. Good practice in our estimation involves regular washing of the hands with soap and water at specified intervals.

Q. Are these men who remove the wax under the supervision of a superior?

A. They are under the supervision of a foreman.

Q. Are you acquainted with the chemistry of the completed product that you have described?

A. I am.

Q. Will you tell us what its chemistry is?

A. Paraffin wax is substantially a mixture of crystalline, waxy hydrocarbons, characterized as being members of the saturated straight chain paraffin family best represented by the generic formula $C_n H_{2n+2}$ and having an average approximate carbon atom content of 24 to 28.

Q. Are there any regulations or formulae which describe or regulate the substance that you are discussing?

A. Yes. Those regulations include the specifications of our own corporation, and this wax is manufactured so as to meet the requirements of the U. S. Pharmacopoeia.

Q. Are the standards of the U. S. Pharmacopoeia published from time to time?

A. They are.

2322 Q. Are they published periodically?

A. To the best of my knowledge, at rather irregular intervals, depending upon the necessity for revision.

Q. That consists, does it not, of definitions of various types of substances, chemical definitions?

A. It does.

Q. Does that contain a definition of the paraffin wax, the substance that you have described?

A. It does, under the general heading "Paraffinum."

Q. You have before you a volume entitled: "Pharmacopoeia of the United States, Eleventh Decennial Revision," bearing the Roman numeral XI., which appears to be an official copy, No. 137111, entered, according to Act of Congress, in the year 1935 by the Board of Trustees of the United States Pharmacopoeial Convention in the office of the Librarian of Congress at Washington. Is this volume the one that is commonly referred to as the U. S. Pharmacopoeia?

A. It is.

Q. Will you refer us to the page upon which you find the standards relating to paraffin wax which describe the wax which you have just told us of?

A. Page 276.

Q. Subject to the right of the defendants to de-
2323 mand the production of an original volume, this volume being property of the Socony Vacuum Corporation, which the plaintiff agrees to produce if required, I will ask you to read into the record the standard contained in that volume for the paraffin wax which it is your testimony this product you have described complies with?

A. (reading.)

"A purified mixture of solid hydrocarbons obtained from petroleum.

"Description and Physical Properties—A colorless or white more or less translucent mass, frequently showing a crystalline structure. It is without odor or taste and is slightly greasy to the touch. Paraffin is insoluble in water and in alcohol; slightly soluble in dehydrated alcohol; frequently soluble in chloroform, in ether, in benzine, in petroleum benzin, in carbon disulphide, in volatile oils and in most warm fixed oils.

"Tests for Identity and Purity—Specific gravity, about 0.900 at 25 degrees Centigrade. It melts between 50 degrees and 57 degrees Centigrade (page 455). When strongly heated, paraffin ignites, burns with a luminous flame and deposits carbon.

2324 "Heat about 0.5 grams of paraffin in a dry test tube with an equal weight of sulphur: the mixture evolves hydrogen sulphide and becomes black due to the liberation of carbon. Shake melted paraffin with an equal volume of hot alcohol: the separated alcohol does not redden moistened blue litmus paper (acids). Pour 5 c.c. of paraffin at a temperature just above its melting point, and 5 c.c. of sulphuric acid into a glass stoppered cylinder which has previously been rinsed with sulphuric acid and heat in a water bath at 60 degrees Centigrade for ten minutes, shaking the mixture at intervals of one minute: the paraffin remains unchanged in color and the acid does not become darker than pale amber (carbonizable substances)."

Q. The quotation that you have read refers to the melting point as being from 50 to 57 degrees Centigrade. Can you translate that for us into Fahrenheit?

A. Approximately 122 to 135 degrees Fahrenheit.

Q. The quotation that you have read refers to the deposit of carbon and the burning of the paraffin in case it is strongly heated.

A. With sulphur present.

Q. With sulphur present. Heating this paraffin 2325 wax to a high temperature, that causes it to disintegrate, does it?

A. Yes.

Q. And at about what point Fahrenheit does it commence to change its form?

A. The temperature at which incipient thermal decomposition takes place is approximately 650 degrees Fahrenheit.

Q. And what occurs at that point?

A. If no air is present, or oxygen, the wax thermally decomposes, forming hydrocarbons of lower molecular weight, less saturated and perhaps some free carbon.

Q. If oxygen is present, what occurs?

A. If oxygen is present and the material is ignited at that temperature the hydrocarbon will be completely converted to carbon dioxide and water.

Q. The paraffin wax that you have described I under-

stood you to say complies with the definition of paraffin wax as given in U. S. Pharmacopoeia XI.; is that right?

A. It does.

Q. Are you also familiar with the standards of U. S. Pharmacopoeia X., which preceded this?

A. I am.

Q. Would your testimony with respect to that be the same?

2326 A. It would be.

Mr. Rall: Now, I will ask that the Notary mark this carton as "Plaintiff's Exhibit 1" for identification.

—(The carton referred to was marked for identification "Plaintiff's Exhibit 1, April 25, 1939.")

(Then there followed some discussion off the record.)

Q. I show you Plaintiff's Exhibit 1, identified by the Notary, and ask you to state what occurs when a carton of that type is immersed in the paraffin wax that you have described, heated to a point between 170 and 185 or 190 degrees Fahrenheit and then removed and cooled?

A. Depending upon the time of immersion, there is a certain amount of penetration of the wax into the board, and even in a brief time sufficient penetration to give good adhesion of the surface film, which is a continuous film, which is subsequently left upon the carton after removal from the wax bath during the draining period.

Q. When you refer to adhesion, you mean the adhesion of the paraffin wax to the fiber board; is that correct?

A. I do.

2327 Q. Is there any chemical reaction connected with this process that you have referred to?

A. There is not.

Q. Is the wax after the immersion and subsequent cooling of the same chemical composition that you described in your testimony, referring to the paraffin wax manufactured by your company?

A. It is.

Q. With respect now to the properties of a fiber board such as Plaintiff's Exhibit 1, before and after the immersion in paraffin, with respect to liquids, the effect of liquids such as water or milk on the exhibit, what, if any, change does this paraffining process bring about?

Mr. Schaefer: What is the question?

(Question read by the reporter.)

Mr. Rall: Is my question clear to you?

The Witness: I think so, yes.

A. The impregnating and coating operation produces a continuous film which prevents any contact between any aqueous phase liquid placed in that container and the original paper fibers.

Q. In other words, the paraffin coating makes the paper fiber impervious to a liquid such as water or milk; 2328 is that correct?

A. It does at temperatures below the melting point of the wax.

Q. As I understand your testimony, below the melting point of wax it is impervious to water or what you have described as an aqueous phase liquid?

A. Yes.

Q. And is milk included in that definition?

A. Yes.

Q. Have you given any study to the question of the coating of fibers and papers with this paraffin wax manufactured by your company?

A. Yes; a very considerable amount of technical work has been directed to this problem in our laboratories.

Mr. Schaefer: I object to that because it is not responsive.

Q. Have you yourself made studies in that connection?

A. I have, personally, and additional studies have been made under my direction.

Q. Is this process that you have described of coating with paraffin a fiber carton such as Plaintiff's Exhibit 1 substantially the same process that is used in what we call wax paper or paper cups or things of that type?

2329 Mr. Schaefer: I object to that as immaterial.

Mr. Rall: You may answer subject to the objection.

A. It is.

Q. For what purposes is the paraffin wax manufactured by your company, which you have described, used?

Mr. Schaefer: That is also objected to as immaterial.

Mr. Rall: You may answer subject to the objection.

A. It is very largely used in the paper industry as an impregnating and coating material. It is also used as a household sealing-wax for fruit and jelly jars. It is used as an ingredient of wax polishes and finishes. It is used as an ingredient in the sizing of paper. It is used as an

electrical insulating material, and for many other purposes.

Q. Does your company sell wax for the purpose of sealing fruit jars?

Mr. Schaefer: That is objected to as immaterial.

A. We do.

Q. And does that have a trade name?

A. Yes, in various territories it is known as either Parowax or as Paraseal wax.

Q. In what size cakes are those sold?

Mr. Schaefer: Do you want me to object every 2330 time?

Mr. Rall: No; your objection to the materiality of this testimony stands.

The Witness: Will you repeat that question?

(Question repeated by the reporter.)

A. In quarter-pound cakes, packed four to the one-pound box.

Q. And the box is substantially the size of a pound of butter, is it not?

A. It is.

Q. And the wax so used is melted by the housewife and poured on the top of fruit for the purpose of sealing it in the preserving process; is that true?

A. That is correct.

Q. Is this product you referred to as Parowax, sold for the purpose mentioned, the same or a different product than the paraffin wax that you shipped to Chemung, Illinois?

A. It happens to be identically the same material as that which has been shipped to Chemung, Illinois, for the account of the Dean Milk Company.

Q. The difference being, I take it, in the form of the size of the cake and the method of packaging the article?

A. That is correct.

Q. You referred to the use of this paraffin wax in 2331 the impregnating and coating of papers by the paper industry. What is the purpose of that?

A. Probably the most important purpose is to render the material being coated or impregnated moisture proof.

Q. And is the reason that that material, when so impregnated or coated, is moisture proof the same reason that you have given for your statement that when Plaintiff's Exhibit 1 is immersed in wax it becomes impervious to an aqueous phase liquid?

A. Yes.

Q. Will you give us so far as you can think of offhand examples wherein paraffin wax is used for that purpose in other products or packages containing liquids or intended for liquids other than a container for milk?

Mr. Schaefer: That is also objected to.

Mr. Rall: Your objection stands as to the materiality until I tell you that I am changing my line of questions.

Mr. Schaefer: Fine.

A. Containers intended for the packaging of such materials as ice cream and cheese; containers intended to hold for a brief period of time coffee, water, tea or other beverages and so forth, represent good examples.

2332 Q. Would the tiny sealed cup containers that the air lines use for the cream, dispensing of cream to their passengers, be an example of what you have referred to, or are you acquainted with that?

A. At least some of them would be. I know of some which are paraffin wax coated.

Q. Are the paper cups that are used for individual drinking cups largely within the class of products that you would refer to?

A. They are.

Q. Do you know the names of any that are impregnated with the wax manufactured by you?

A. You mean the trade names?

Q. Yes.

A. No, I do not. I cannot answer that question.

Q. Is there any difference between the penetrating powers of milk and cream into a paraffin coated fiber board and the penetrating powers of water?

Mr. Schaefer: I object to that for the additional reason that the witness has not been qualified to express an opinion on that subject.

A. Technically there is some difference.

Q. And what is that difference, if you know?

2333 A. Milk contains a certain amount of butter fat in suspension in the water, which butter fat has a greater dissolving effect upon the wax coating than ordinary water, and therefore a container coated with wax will hold water generally for a longer period of time without failure than will a similar container filled with milk or cream.

Q. Does the depth or thickness of the coating of the paraffin on the container have a relationship to the time that

the container remains impervious to penetration by milk or cream?

A. Yes.

Q. And the thicker the coating, the more impervious it will become, or the longer will be the time that it will retain its imperviousness to penetration?

A. Other things being equal, that is correct.

Q. Have you or has anyone under your direction—I think it is fair to say now that I am changing my line—have you or has anyone under your direction made any tests with respect either to the desirable thickness of the coating of paraffin on milk containers or as to the time, depending upon the thickness, that the container remains impervious to the absorption of milk?

A. Yes.

2334 Q. Have those studies been based upon the thickness of the paraffin by measurement or upon the immersion time in the paraffin bath of the carton?

A. There has been no actual measurement of the thickness of the film, but the thickness of the film has been approximated by observations connected with the details of the method of application of the film and the amount of wax applied to a unit area of board, the higher the temperature and the longer the period of immersion giving greater penetration and lesser surface film, and the shorter the time of immersion and the lower the temperature of impregnation, followed in some cases by chilling, giving increasingly thicker films, thicker continuous films of wax upon the surface.

Q. What is the effect on bacteria that might be present either on the surface of the fiber board, such as Plaintiff's Exhibit 1, or in the paraffin of the heating process and the immersing of Plaintiff's Exhibit 1 in the paraffin bath?

Mr. Schaefer: That is objected to on the ground that the witness has not been qualified to answer that question.

A. Although I am not a bacteriologist, I understand from reputable sources that paraffin is an active sterilizing material, particularly at the temperatures of application referred to.

2335 I agree with Mr. Schaefer that I am not in a position to answer that question. You should get a bacteriologist to answer it.

Mr. Rall: I think you may cross-examine subject to one question that I will ask on further direct.

Cross-Examination by Mr. Schaefer.

Q. When you were referring to the impregnation of paper and the thickness of the resulting coating from immersion in paraffin, what temperature ranges and what time intervals did you have in mind?

A. We work in temperature ranges from 140 to 220, perhaps 240 in one or two isolated cases, degrees Fahrenheit for times of immersion varying from a second up to a minute or longer, with various cooling methods used after immersion, such as cooling at room temperature, cooling under forced air draft, and cooling by passing through cold water.

Q. And those were the temperature ranges and those were the time intervals that you had in mind in your direct examination?

A. Yes. That time referred only to time of immersion.

Q. Yes. Now, you have testified as to the melting point of paraffin and as to the decomposition point. What happens to paraffin when heat is applied to it between those two points?

A. Practically nothing so long as there is no contact with oxygen or other active chemical substance.

Q. At what temperature will oxidation of paraffin begin?

A. Oxidation of paraffin will begin at relatively low temperatures. It is only really significant at temperatures—

Q. No; just answer the question that I asked, Mr. Keyser.

A. At relatively low temperatures. Well, I can only answer it by saying that no oxidation, no appreciable oxidation will occur below the melting point of wax. The wax in the molten state in contact with air will oxidize to a greater or lesser extent, depending upon the temperature and the area exposed to the oxygen.

Q. And will it depend also upon the length of time that heat is applied?

A. Yes; it depends upon the time factor plus the factor of the area exposed to the air.

Q. Plus heat?

A. Plus heat, plus temperature. There are three variables there.

2337 Q. What is the nature of the products of the oxidation of paraffin?

A. The paraffin, when it oxidizes, eventually forms the usual organic oxy materials, such as acids, esters, ketones and the usual insoluble petroleum sludges.

Q. How acid are those products of oxidation, Mr. Keyser?

A. They are typical weak organic acids.

Q. Can you give us their strength?

A. In terms of what?

Q. In terms of usual acid measurements.

A. The usual acid measurement is the effect upon the PH of water.

Q. Water is neutral?

A. Pure water is neutral. They are relatively insoluble and have a very slight depressing effect upon the PH of an aqueous solution, but they are regarded as very weak organic acids.

Q. What would you say their PH measurement is?

A. That would depend upon their concentration and their nature.

Q. That would depend upon the length of time exposed to heat?

2338 A. To a certain extent, yes, and the concentration in the water and the concentration in the wax. That is, you have got to bring the wax in contact with the water, and then a certain amount of those materials would have to be leached out into the water.

Q. And would you say that those products of oxidation have an acid measurement of PH5?

A. They might have, yes.

Q. You referred to the temperature maintained during the manufacture of the paraffin. Did I understand you to say that 160 degrees is uniformly maintained?

A. No; that was the temperature at which the wax was molded, poured into the molds.

Q. And that is uniformly maintained?

A. That is uniformly maintained.

Q. Is paraffin itself a bactericidal agent?

A. Again, I would refer to the fact that I am not a bacteriologist, but it is my understanding that it is.

Q. And, referring to the waterproofing action of paraffin when applied to paper, does the paraffin uniformly impregnate the paper?

A. Reasonably, yes.

Q. You mean it does not uniformly impregnate the paper?

2339 A. I mean reasonably so it does impregnate the paper.

Q. But there is no absolute uniformity of impregnation?

A. Nothing in this world is absolutely uniform.

Q. Including the impregnation of paper by paraffin?

A. Pardon?

Q. Including the impregnation of paper by paraffin?

A. That goes without saying.

Q. Does the paraffin coat each fiber of the paper?

A. Each fiber of the paper with which it comes in contact. Of course, it may not penetrate to the center of the board, but if it comes in contact with the fiber it quite uniformly coats it.

Q. You enumerated all of the practices of personal cleanliness and the sanitary practices that are engaged in by the men who handle the molten wax when packing it?

A. I referred to those practices, yes.

Q. And you referred to all of them?

A. I referred only to the specific practice that they wash their hands thoroughly with soap and water.

Q. And that is the specific practice that is engaged in by the men?

A. That is the specific practice.

Q. Are there any other practices engaged in?

2340 A. No. And I think it is significant to note here—

Q. The answer is "No," Mr. Keyser.

A. Well, I want to modify that "No."

Q. All right.

A. No, because paraffin itself is regarded as quite a sterile material, and a plant or building wherein only paraffin wax is handled is a place where the maintenance of a reasonable, commercial sterile condition is rather a simple process.

Mr. Schaefer: If that is on the record, I want to object to the last portion of the last answer, everything beyond "No," as unresponsive to the question.

Q. Who manufactures the treated craft paper which is used in the burlap bags?

A. I don't recall offhand. I have known, but I have forgotten.

Q. And those bags, how do they leave your plant?

A. How do they leave our plant?

Q. Yes.

A. With the wax in them?

Q. Yes.

A. They are—

Q. I mean by truck, by rail? What happens?

2341 A. They are either packed in carloads, or they may leave by truck or whatever the method of delivery to the customer by our warehouse is.

Mr. Schaefer: That is all.

Redirect Examination by Mr. Rall.

Q. How are these men dressed who handle paraffin wax?

A. In work clothes which are used in the premises only.

Q. They change their clothes when they come in?

A. They do.

Q. And when they are not at the plant where are those clothes kept?

A. In lockers provided for the purpose.

Q. Do they wear aprons?

A. They do not.

Q. As part of your direct examination this is what I wanted to ask. It will be subject to cross-examination. Assuming that a fiber carton such as Plaintiff's Exhibit 1 is immersed in a paraffin bath heated to a temperature ranging from 165 to 185 degrees, with the bottom sealed five seconds down and five seconds up, and then is cooled for one minute at a temperature of approximately 40 degrees by artificial cooling—

Mr. Schaefer: Forty degrees what?

2342 Mr. Rall: Fahrenheit.

Q. (Continuing.) —do your studies give you an opinion as to what length of time a carton so treated with your paraffin wax will be impervious to the absorption of milk or cream?

Mr. Schaefer: That is objected to. The witness has not stated that he has made any studies directed toward that thing.

Mr. Rall: Yes; he says he has.

A. Yes.

Q. Of what did the studies consist which give you an opinion on that subject?

A. Studies with containers so coated, both in the laboratory and in commercial operation, and the usual standard tests with a number of containers containing the liquid or

by experiments at regular periods of time to develop the time of failure.

Q. And by "failure" what do you mean?

A. Softening of the board, indicating that moisture has broken through the wax coating, penetrated the board, or actual leaking.

Q. Are these some of the tests that you previously described you made on the general subject of the coating of papers?

A. They are.

Q. Will you state your opinion as to the length of time, after a carton has been treated as I described in my previous question, that the carton so coated would be impervious to penetration through the paraffin of cream or milk?

A. Under the conditions that you have described, and from the work which we have done, I would expect that such containers would be satisfactory for a period of from one to two weeks.

Mr. Schaefer: That is objected to as not responsive.

Q. Now, when you say "satisfactory," you mean that it would not develop impregnation through the paraffin of the fiber board; is that correct?

A. That is correct.

Q. I mean absorption of milk or cream into the fiber board.

A. That is correct.

Q. And when you say you would expect—

A. (Interposing.) I mean that is what our tests have indicated.

Q. And that is your opinion?

2344 A. That is right.

Mr. Rall: You may cross-examine.

Recross Examination by Mr. Schaefer.

Q. How did you determine when there was penetration in those tests?

A. As I said, in the case where we work with the container itself, the indication is when a soft spot or bulge appears and you can immediately detect penetration by water into the fiber by a certain amount of discoloration and softening of the board. Also, in some cases you also get leakers. Both phenomena are observed.

Q. And that is the type of penetration that you are talking about?

A. That is right.

Q. And the only type of penetration that you are talking about?

A. No. On the other hand, studies have been made with board—

Q. Your tests, now, Mr. Keyser.

A. Our tests have also included studies with board waxed, not made up into containers, but immersed in the liquid in question, and samples removed at regular intervals, the surface moisture being removed and the specimens weighed to determine whether or not there has been any penetration of moisture into the board through the wax film which would result in an increase in weight.

Q. And you have found a period of two weeks—

A. Under the conditions described, with this type of board, and with that type of waxing, I would expect that there would be no material increase in weight for a period of one week, and, in some cases, possibly two weeks. I gave that as a range.

Q. Now, are the results of those experiments uniform?

A. Quite reasonably uniform, provided the application of the wax is uniform. That is the most critical point in the actual, technical work—to obtain a uniform application of the wax.

Q. Well, would you call a variation of one week to two weeks reasonably uniform?

A. I have given that average because it is impossible, on the basis of the brief description on the method of the application of the wax, to exactly correlate it with laboratory experiments.

Q. Do your laboratory experiments indicate a variation?

A. There is very little variation, provided the wax is uniformly applied. That is, you take two pieces of board to which wax has been applied, the same wax in exactly the same fashion. The results will check each other very satisfactorily; I should say, on the average, within five to ten per cent.

Q. Suppose you took containers?

A. Pardon?

Q. Suppose you took containers?

A. There, too, the results have been quite satisfactory from the point of view of uniformity.

Q. Has there been as much uniformity in the case of containers as in the case of boards?

A. In the case of a container there are so many more possibilities of slight deviations that the uniformity will not be as great as with a single piece of board immersed in the liquid.

Mr. Schaefer: That is all.

Mr. Rall: That is all.

Plaintiff's Exhibit 1 referred to in the testimony above is attached hereto.

Paul V. Keyser, Jr.

Subscribed and sworn to before me this 5th day of May, 1939.

(Seal) Irvin Taber,
Notary Public,
Bronx County No. 39,
N. Y. County Clerk's No. 323.

Commission expires March 30, 1941.

2347 IN THE DISTRICT COURT OF THE UNITED STATES.

• • (Caption—) • •

CERTIFICATE.

State of New York, }
County of New York. } ss.

I, Irvin Taber, a Notary Public, duly commissioned and acting in and for the County of New York, State of New York, do hereby certify that the foregoing deposition is a true record of the testimony given by the witness Paul V. Keyser, Jr., upon his oral examination before me, pursuant to notice dated April 15, 1939, at the office of Mudge, Stern, Williams & Tucker, 20 Pine Street, New York, N. Y., on Tuesday, April 25, 1939, commencing at 2:00 o'clock, p. m.; that the said witness was duly sworn by me before testifying and that his testimony was
2348 personally recorded by me stenographically and transcribed under my direction, and that when the aforesaid testimony was fully transcribed the deposition was

submitted to the witness for examination and was read and signed by him in my presence, at which time he was again sworn by me.

I further certify that there appeared at the taking of said deposition Gariepy & Gariepy, Esqs., attorneys for plaintiff, by Owen Rall, Esq., of counsel; and Barnet Hodes, Esq., corporation counsel of the City of Chicago, by Walter V. Schaefer, Esq., and Charles P. Hogan, Esq., assistants corporation counsel.

I further certify that I am not of counsel nor related to any of the parties in this action, nor am I interested in the outcome of this suit.

In testimony whereof, I have hereunto set my hand and seal this 5th day of May, 1939.

(Seal)

I. M. Taber,

Notary Public,

Bronx County No. 39,

N. Y. County Clerk's No. 323.

Commission expires March 30, 1941.

23484

No. 96533.

State of New York, }
County of New York. } ss.

I, Archibald R. Watson, Clerk of the County of New York, and also Clerk of the Supreme Court in and for said county, do hereby certify that said Court is a Court of Record, having by law a seal; that Irvin Taber, whose name is subscribed to the annexed certificate or proof of acknowledgement of the annexed instrument was at the time of taking the same a notary public acting in and for said county, duly commissioned and sworn, and qualified to act as such; that he has filed in the Clerk's Office of the County of New York a certified copy of his appointment and qualification as Notary Public for the County of Bronx with his autograph signature; that as such Notary Public, he was duly authorized by the laws of the State of New York to protest notes, to take and certify depositions; to administer oaths and affirmations; to take affidavits and certify the acknowledgement and proof of deeds and other written instruments for lands, tenements and hereditaments, to be read in evidence or recorded in

this state; and further, that I am well acquainted with the handwriting of such Notary Public and verily believe that his signature to such proof or acknowledgement is genuine.

In testimony whereof, I have hereunto set my hand and affixed the seal of said Court at the City of New York, in the County of New York, this 22nd day of May, 1939.

Archibald Roberts,

(Seal)

Clerk.

2349 Plaintiff's Exhibit 1 is forwarded as a Physical Exhibit.

2353 IN THE DISTRICT COURT OF THE UNITED STATES.

• • (Caption—316) • •

(Filed May 24, 1939. Hoyt King, Clerk.)

Depositions of witnesses taken in behalf of the Plaintiff pursuant to notice served on the Defendants on April 15, 1939, at the offices of Dechert, Smith and Clark, Esqs., 1320 Packard Building, Philadelphia, Pa., on Thursday, April 27, 1939, at 10 o'clock a. m., before Lewis A. Bicking, a Notary Public in and for the Commonwealth of Pennsylvania.

Present:

Gariepy and Gariepy, Esqs., by Owen Rall, Esq., representing the Plaintiff.

Barnet Hodes, Esq., corporation counsel of the City of Chicago, by Walter V. Schaefer, Esq., and Charles P. Horan, Esq., assistants, corporation counsel.

2354 HERBERT M. PACKER, having been duly sworn, was examined and testified as follows:

Direct Examination.

Mr. Rall: To save time, the plaintiff agrees that all objection to the materiality of any testimony during this deposition may be made when the deposition is offered in evidence without the necessity of counsel at this time interposing such objection.

Mr. Schaefer: All right.

By Mr. Rall:

Q. Mr. Packer, will you state your name?

A. Herbert M. Packer.

Q. And where do you reside?

A. 1717 North 41st Street, Philadelphia.

Q. How old are you?

A. 48 and a half.

Q. What is your business or profession?

A. Civil engineer by profession. My position is chief of the division of housing and sanitation in the Department of Public Health, City of Philadelphia.

Q. How long have you been in that position?

A. I have been Chief since April, 1925.

Q. You attended high school?

2355 A. Yes, sir. I attended the Philadelphia Grammar Schools, the Central Manual Training High School in Philadelphia, graduating in 1908. At the University of Pennsylvania I took the course rating the degree of Bachelor of Science in Civil Engineering, and graduated in June, 1912.

Q. At the University did you specialize in any particular branch?

A. I specialized in sewage disposal and public health work.

Q. After you were graduated, what did you then do?

A. I went to work for the City of Philadelphia as a laborer.

Q. Was that your classification?

A. That was my classification and my work.

Q. What was the nature of that work?

A. I worked in what was known as the bridge and sewer division, sewer maintenance work and bridge maintenance work, putting down bridge flooring, and cleaning sewers, repairing sewers on the inside.

Q. From that time until the War, will you describe just briefly what positions you held with the City?

A. I went through the grades of Assistant Foreman, Foreman, Inspector, Engineering Inspector, Assistant
2356 Engineer of Sewers, then assistant engineer in land drainage work, which position I held when the War broke out in 1917; then mosquito elimination work and land drainage work in the southern sections of our city.

Q. During the war time what did you do?

A. I was commissioned a first lieutenant in the Sanitary Corps, and then promoted to Captain; went into the

service in September, 1917, and was promoted in March, 1918, went overseas in May of 1918.

Q. While you were in the Army at what points were you stationed?

A. I started at Millington, Tennessee, in an aviation camp. Then I went over to Camp Sevier at Greenville, South Carolina, and then Camp Sherman, at Chillicothe, Ohio, and then overseas.

Q. What was the nature of your work?

A. I was attached to the Medical Service doing sanitary work pretty well all over France, although quite a lot of the time I was at a hospital called Mesves Boisy in the interior of France, a sixty thousand bed hospital, as sanitary officer for the area. It covered several square miles.

Q. When did your connection with the Army terminate?

A. I was discharged in June, 1919, and went back 2357 to work for the City in the Bureau of Health as a supervisor of sanitation in charge of investigation of all types of nuisances in the city.

Q. And how long did that work continue?

A. I kept in that job until I was appointed Chief in April, 1925.

Q. When you were appointed in 1925 as Chief of the Division, state briefly what your duties were.

A. That took in many different classifications of work, nuisance work, housing or multiple dwelling work, and plumbing work. In the middle of 1927 there was a consolidation of divisions, and the division of milk inspection and the division of meat inspection was made part of the division of housing and sanitation, and I took charge of that work.

Q. How long were you in charge of milk inspection work?

A. Until 1936, at which time meat and milk were consolidated into a division of its own.

Q. Who is now the head of that division?

A. Dr. Yunker, Elkan Yunker. He is now Chief Veterinarian.

Q. When you became milk inspector—I am just using that regardless of what your title was—what, if anything, did you do by way of study, or travelling, and so 2358 forth, to acquaint yourself with the duties of your office?

A. My experience in milk at that time had been largely

theoretical. I had no practical experience, and I had to gain a lot of it since I was going to have charge of the milk inspection in Philadelphia, I had to get a lot of it in a hurry. I spent the next year doing nothing but studying milk, going around to all our plants, practically living in them, living in our farms finding out what I could find out about milk inspection, and supply, and equipment.

Q. You also read literature on the subject?

A. Oh, yes, I think I read everything it was possible to get.

Q. About what is the approximate population of the City of Philadelphia?

A. It is approximately two million.

Q. What is the method of delivering milk? There is house to house delivery?

A. We have two main methods, house to house delivery; that is, for household milk, house to house delivery; and store.

Q. Chain store?

A. Chain stores and independent stores.

Q. Where does the milk come from, largely?

2359 A. Well, from Pennsylvania, New Jersey, Delaware; I should say about eighty per cent of it comes from Pennsylvania, or Pennsylvania farms.

Q. At about what distance marks the limit of what you might call your milk shed?

A. 200 or 250 miles.

Q. Shipped in by train?

A. Truck, mostly.

Q. In connection with your work did you attend any meeting of public health officials, dairy shows, or anything of that kind?

A. Yes, I attended practically every dairy show, every conference that I knew of, innumerable conferences.

Q. With whom were these conferences?

A. Well, the health officials of this district have a group that meet together every month, and they discuss all sorts of topics. Milk officials have another group. There are a number of groups of officials having to do with various plans of public health work. We meet at various times. I try to attend as many of those as possible.

Q. Did you attend a conference at Geneva, New York, in July, 1937?

A. Yes, sir, I did.

2360 Q. What was that conference?

A. That was a conference called by Dr. Breed and Dr. Sanborn, of the New York Agricultural Experiment Station to discuss paper containers for milk. At that conference were public health officials, paper bottle manufacturers, paper manufacturers, and quite a few research men who had done considerable work in the field of paper bottle research.

Mr. Rall: Will you identify that with your signature? (A leaflet entitled, "The Milk Sanitarian," marked Plaintiff's Exhibit 4, was signed by the Notary.)

By Mr. Rall:

Q. I show you what we have marked Plaintiff's Exhibit 4; a printed leaflet inserted in that exhibit is entitled, "Conference on Sanitation, paper milk containers, New York Experiment Station, Geneva, New York, July 12, 1937." Is that the report of the conference you just referred to?

A. That is correct. That is a report of the conference.

Q. For the record, being a reprint from "The Milk Sanitarian", Volume 6, number 9, September, 1937, pages 11-13, 703 Anacapa Street, Santa Barbara, California.

What, if any, study have you made, or investigation 2361 of the subject of the use of paper containers for the sale of liquid milk?

A. I have been pretty much interested in the use of single service containers for milk ever since I have been identified with milk inspection work, and since Philadelphia is possibly one of the pioneer cities of paper bottles and had for a long time one of the few successful installations of paper bottles in our city, I had an opportunity to see just how it worked out with not only the containers but with the public reaction, and public health.

Q. When were paper bottles first used in the City of Philadelphia, if you know?

A. I think they came in here shortly after I took charge of the milk section, I think about 1928 our first bottles came in here, '28 or '29, I am not quite certain of that date.

Q. In that connection, did you make some examination of the entire subject before permitting the sale of milk in those containers?

A. Yes, the first containers that came in here were the Sealrite from Fulton, New York, and the Sealcone from New York. The first bottle was one just made in the plant

at Fulton, New York, and shipped down in cartons, 2362 and the other were blanks that were shipped into the plant, and the bottle was made right in the plant. I had an opportunity to make a number of studies of those and had our laboratory make a number of bacteriological studies on them. Both bottles have been continuously used in Philadelphia since that time.

Q. Did you make any investigation of the sanitary conditions under which the paper going into those bottles was manufactured?

A. I have not been to a mill. I can't tell you anything about the sanitation of mills other than a report of conditions of mills prior to the Breed conference at Geneva, and I feel that they were at that time in pretty bad shape, that there was very little attention paid to the quality of water used; in a good many instances, to the quality of stock used; that they had not identified cardboard with any such food-as milk, and the need for sanitation apparently was not evident to them up until that time. I think that opened their eyes. I think since that time the reports we have gotten from various companies—

Mr. Schaefer: Just a minute. I want to object to any statement as to reports that you have gotten as to conditions in the mills.

2363 By Mr. Rall:

Q. You may continue, subject to the objection.

A. The reports that we have gotten led us to believe that the mills have cleaned up, that the water supplies are now in conformance with the United States Public Health standards, and that the stock that is used is all virgin stock. There is no second-hand stock used. We have not, incidentally, made any inspection of mills.

(A cardboard milk container marked Plaintiff's Exhibit Number 2 was signed by the Notary.)

By Mr. Rall:

Q. I show you Plaintiff's Exhibit 2, purporting to be a quart Pure-Pak milk bottle. Have containers of that type been in use in the City of Philadelphia?

A. Yes, they have been in use in Philadelphia for five or six years.

Q. What dairy uses those?

A. Well, the main dairy using them now is the Silver Seal, or Sylvan Seal Company at 612 South 24th Street. They have just taken this type of container on in the last

few months, switching over from the Sealcone. Prior to that time they were used by a dairy up at Bordentown, or Wrightstown, I forget which, just across the line in New Jersey. They brought in a small quantity of them, 2364 not many of them.

Q. Were you in charge of milk inspection at the time the use of this particular container started?

A. That's right.

Q. At that time was it submitted to you for approval?

A. No, I went to Toledo to investigate this bottle, and to investigate the machinery that made it, and was very much impressed with the bottle and with the way it was made—

Mr. Schaefer: I object to that.

By Mr. Rall:

Q. You may answer, subject to the objection.

A. I went into it very thoroughly at that time as to how it was made, and cooling, paraffin, the type of paraffin used, brought back a number of samples, and had our laboratory analyze them.

Q. What sort of a test did they make?

A. They made bacterial counts on the inside of the containers. I am depending entirely on my memory of five or six years on that, I am not quite certain, but I think they wash tested on the inside of the bottles.

Q. Are you certain you did submit samples to the laboratory and that their report was favorable?

A. Positively, yes. I am quite certain it was 2365 favorable.

Q. From a public health standpoint, and from your experience in milk control work, can you make a comparison between the use of the glass milk bottles and paper single service containers as to what you consider the advantages of one over the other, or vice versa?

Mr. Schaefer: That is objected to upon the ground of immateriality, and upon the additional ground that such a comparison doesn't afford any competent evidence to determine the question at issue in this case.

By Mr. Rall:

Q. You may answer, subject to that objection.

A. I personally like single service containers. I feel that glass milk bottles—that our dairies are doing all that they possibly can to turn out sterile containers, but my experience is that glass milk bottles are the most abused articles in the world.

The dairies, themselves, and our Public Health Departments, for that matter, tried to prevent the abuses, consequently depending too much on the sterilization of the bottle when it gets back to the milk plant, regardless of whether it is picked up from a dump, or comes from 2366 a doctor's office. We don't have enough factor of safety in that washing and sterilization, so that I much prefer a single service container. I personally believe that the day of the glass milk bottle and the container that is reused in milk is going to be a thing of the past.

Q. You referred to abuses of glass milk bottles. Will you describe briefly what you mean by that?

Mr. Schaefer: I would like to have the same objection continue to all questions involving a comparison between the paper and glass, and also all questions dealing with the condition of glass.

Mr. Rall: That is satisfactory. Without renewing the objection, it stands to this line. Will you read the question?

(The question was repeated by the Reporter as follows:)

"Q. You referred to abuses of glass milk bottles. Will you describe briefly what you mean by that?"

A. Well, a glass built milk bottle is the handiest thing in the world for anything that you want it for. If you want to buy turpentine, coaloil, or if you want a sample for a doctor's office, a urine sample, a glass milk bottle generally is the receptacle that is used. So many of them are picked up from dumps and returned to the 2367 dairies. The dairies, themselves, leave them on the streets where they are a target for every passing dog. That doesn't happen to single service containers.

By Mr. Rall:

Q. You referred to a factor of safety in connection with the sterilization of glass milk bottles. What is the common practice with respect to the method of sterilizing glass milk bottles?

A. Well, depending on the sterilizing agent that you use. You put in enough to sterilize the bottle, but they don't have much of a factor of safety. The factor of safety as a rule is one, and if the job is done perfectly, of course, you have a sterile bottle, but if there is any slip at all, you don't have a sterile bottle, and that is very frequently the case, that with glass milk bottles you don't have a sterile container.

Q. Has your experience indicated whether or not the bacteria counts on glass milk bottles are subject to rather violent variances?

A. Yes, on all bottles, paper included.

Q. That is true with respect to them?

A. Yes.

Q. This Plaintiff's Exhibit 2 appears to be coated with a substance. Can you tell what that is?

2368 A. Well, in Philadelphia they use 100% mineral, paraffin, and I imagine that is what is on here. It seems to be.

Q. What is your opinion of paraffin as a sealing agent?

Mr. Schaefer: I object to that on the ground the witness has not been qualified to express his opinion.

By Mr. Rall:

Q. You may answer, subject to the objection.

A. I think it is a very good sealing agent. I dare say that in the ten years that I was in charge of milk, there were one hundred and fifty million quarts of milk sold in paper bottles, and we never had a record of any illness having been caused by any one—

Mr. Schaefer: That is objected to as not responsive.

Mr. Rall: I am the only one who can object on that ground, Mr. Schaefer.

By Mr. Rall:

Q. Continue.

A. I think the question had to do with paraffin.

Q. That is true, your opinion of paraffin as a sealing agent.

A. I think it is very good. My memory goes back to when I was a kid, we used to chew paraffin. It was a
2369 very common ingredient of candy at that time. We used to take paraffin, and put sugar in it, and sell it as a sort of a substitute for chewing gum, and I still think it is a very good sealer for milk containers.

Q. During the time that you have referred to when you estimate that one hundred and fifty million quarts of milk were sold in paper containers, did you have any complaints or any personal knowledge yourself of paraffined paper bottles absorbing the milk or cream?

Mr. Schaefer: That is objected to on the ground that it is incompetent evidence.

By Mr. Rall:

Q. You may answer, subject to the objection.

A. I never heard any real criticism raised of milk absorbing into the paper through the paraffin. I can see where if it stayed in the bottle for any prolonged period it might absorb into the paper, but you don't keep it in there that long.

Q. When you say a prolonged period, what time did you have in mind?

A. Well, in a couple of weeks or a month it might soften up, and the milk or cream might be absorbed into the paper.

Q. State whether or not during the time that the 2370 paper milk containers have been in use in the City of Philadelphia there has been any infection, disease or epidemic which you as Public Health Official in charge of milk inspection believed or even suspected was due to the use of paper milk containers.

Mr. Schaefer: That is objected to upon the ground of incompetency.

A. None whatever.

By Mr. Rall:

Q. In connection with the glass milk bottle is paper used?

A. Yes, for the cap, for the plug paper is used, or cardboard is used.

Q. That is essentially no different in type—that is, so far as its being paper fibre is concerned—than the material in Plaintiff's Exhibit 2, is it?

A. That is true.

Q. You are acquainted with some of the uses to which paraffin covered paper or paraffin covered fibre board are put? Can you state some of the uses?

A. Well, it is used for covering these plugs, these paper plugs that are used in glass bottles.

Q. I am referring, now, also to any other common uses that you may know of.

2371 A. Yes, it is used for any number of food containers and food dispensers, paper cups, butter cartons, and all sorts of cartons for carrying foods out of stores, soups, a number of dry cereals, coffees; hundreds of food products are put into paraffin paper.

Q. Also ice cream and cheese?

A. Ice cream and cheese.

Q. Are those uses that you have referred to generally accepted by Public Health Officials throughout the country, if you know, as being sanitary?

A. Oh, yes.

Mr. Schaefer: That is objected to.

The Witness: I will say in so far as I have traveled, I have seen them in every city I have ever been in.

By Mr. Rall:

Q. Are you acquainted with the extent to which containers such as Plaintiff's Exhibit 2 are used in this vicinity outside of the City of Philadelphia?

A. Well, this one company that has just swung over to this particular type serves, taking Philadelphia as a center, westward twenty miles, eastward to the Atlantic Ocean, including Atlantic City and all the resorts south from Atlantic City to Cape May, a number of resorts along 2372 there in Cape May County; they go south, including Delaware, Wilmington, Baltimore and Washington using this container.

Q. Are these municipalities you have referred to in which milk is sold in these containers places where they have milk inspection and milk ordinances?

A. Yes, every one of them.

Mr. Schaefer: That is objected to.

By Mr. Rall:

Q. The officials in some of these places that you mentioned are officials with whom you have had conferences in connection with milk?

A. Yes, I know most of them in that area. In fact, they have very good milk laws.

Mr. Schaefer: I move to strike that out as not responsive to anything.

By Mr. Rall:

Q. State whether or not from your personal knowledge of the opinion of these various public health officials in the communities that you have mentioned, the container which is Plaintiff's Exhibit 2 is accepted by them as being a proper sanitary standard container for the sale of liquid milk at retail.

Mr. Schaefer: That is objected to upon the ground 2373 it is not the best evidence, that it is hearsay, that it is incompetent, and upon the further standing objection that it is immaterial.

Mr. Rall: Will you read the question?

(The question was repeated by the Reporter as follows:

"Q. State whether or not from your personal knowledge of the opinion of these various public health officials in the communities that you have mentioned, the container which

is Plaintiff's Exhibit 2 is accepted by them as being a proper sanitary standard container for the sale of liquid milk at retail.")

A. In practically every one of the communities I know the milk law, what it calls for, and know that in every one of those communities that this package is accepted, and openly and freely sold, and I don't know and never heard of any prosecution having been instituted in any one of those areas, so that I infer very strongly that it has been accepted and approved by them.

Mr. Rall: You may cross-examine.

Cross-Examination by Mr. Schaefer.

Q. Who administers public health matters in the 2374 City of Philadelphia?

A. The Director of the Department of Public Health is appointed by the Mayor, and is in charge of all public health matters.

Q. Are your regulations with respect to milk in the form of ordinances?

A. Ordinances and state laws.

Q. Does the head of the department have any authority to make regulations in this city?

A. The Board of Health under a basic act in the City of Philadelphia of 1818 has the the right to make certain rules and regulations having to do with any matter pertaining to public health, but there are specific regulations passed by our Legislature for milk, and that act of the Legislature also gives municipalities the right to make additional rules, or additional ordinances, and we have such ordinances in Philadelphia.

Q. Do you have any regulations of milk in addition to the ordinances?

A. Yes.

Q. That is, you have both an ordinance and regulations?

A. That's right. We have an act of assembly, ordinances of council, and rules and regulations.

Q. Throughout this examination I will refer to 2375 those things collectively as Legislation, so that we won't have to enumerate it every time.

A. Certainly.

Q. What does this Legislation prescribe as to grades of milk?

A. The State Act of Assembly states that any milk sold

as whole milk can only be sold if the definition of that particular grade or trade mark is registered with the Secretary of Health and approved by the Secretary of Health.

Q. And the Secretary of Health is a state officer?

A. A state officer. The Act goes further, and permits the Secretary of Health to designate any local health officer as the agent.

Q. For the purpose—

A. For the purpose of administering the State act, and at Philadelphia, of course, the director of the Department of Public Health has been designated as the agent. When you speak of grades, you mean as A and B milk? We have such grades in Philadelphia, but they are not officially recognized.

Q. What do you mean by that?

A. Other than the fact that A milk must have cover caps, and the State Department of Health will not
2376 permit any milk to be marked A unless it meets with certain grades, but in the City of Philadelphia we don't recognize grades of milk, only two grades, good milk and bad milk. It is bottled as A and B milk.

Q. But not by virtue of any official sanction by any official body?

A. That is right.

Q. The dairyman simply decides he wants to sell his milk as A milk?

A. That's right, and he files a definition with the State Department of Health in which he states he is going to have cover caps, and that he is complying with the State bacterial count. There is no mention made of butterfat.

Q. Is any effort made to determine whether or not his milk complies with the bacterial count?

A. Only with our requirements.

Q. Who makes that?

A. The City, as agent for the State.

Q. The City checks the bacteria count of all grade A milk and all grade B milk?

A. Yes.

Q. You said those grades were not officially recognized; what do you mean by that?

2377 A. Not officially recognized by the City of Philadelphia; we have never officially recognized any grades of milk.

Q. But you do check to determine compliance with bacteria count?

A. Yes, they come up to the requirements of the Department of Health at Harrisburg.

Q. Do you have the U. S. Public Health Standard Ordinance in effect here?

A. No, it doesn't follow substantially that. Generally, it does, but not officially.

Q. Do you have farm inspection?

A. Yes, the State makes the farm inspection. The City of Philadelphia makes no farm inspection, whatever, except in the case of raw milk. We have some raw milk farms, and some certified milk farms; we do inspect those farms, but not for raw milk which is pasteurized, we don't check those farms. That is done by the State.

Q. Do you make an inspection of plants and dairies?

A. Yes, that is where we concentrate, every plant that pasteurizes milk for the City of Philadelphia.

Q. Is there legislation in effect with respect to the sterilization of glass bottles?

A. Oh, yes.

2378 Q. An effort is made by the City to determine whether or not that regulation is complied with?

A. That's true, a very rigid effort is made.

Q. And you inspect that carefully?

A. That is right.

Q. You inspect the dairies carefully?

A. Yes.

Q. To determine whether or not there is compliance with the regulations concerning the handling of glass bottles?

A. That is right.

Q. What rules and regulations are in effect concerning the handling of paper containers?

A. We have practically no regulations.

Q. What regulations do you have?

A. None other than each installation is treated individually, and we have been working more or less on the rule of common sense on paper containers.

Q. That is, you have no regulations at all in the vicinity of Philadelphia pertaining to paper bottles?

A. To paper bottles, that is correct.

Q. You feel that regulations are necessary in the case of glass?

A. Yes, and I also think that regulations are necessary

in the case of paper. I think the City of Philadelphia
2379 will have such regulations before the summer is out.
I was working towards that, incidentally—

Q. I haven't asked you any questions pertaining to that.

A. Yes. Well, here is what I want to explain. You see, I have not been in charge of milk for three years.

Q. Yes.

A. And I think if I had been, if I had continued on, I would have had the regulations quite some time ago. I think they should have been in three years ago.

Q. You feel they should have been in at the time the containers were first permitted here in 1929?

A. No, I don't think so. I think in a thing like that, that you have to know what you are going to do. I think the first constructive effort made to make any regulations on these containers was the 1937 conference by Breed and Sanborn. I think after that, and what developed there, that we could all have gone along and passed regulations.

Q. Regulations were just as necessary before that conference as after, weren't they, from the Public Health point of view?

A. Not necessarily. I think that you could use a certain degree of common sense on all of it. It was certainly evident at that time that virgin board was
2380 necessary. It was necessary at that time that you bottle—

Q. To what time are you referring?

A. When they first came in here, that is what we did see, that it was virgin board, and that the temperature of the wax was high enough to insure a reasonably sterile container.

Q. Has the paper container changed since 1929 to the present day?

A. Has it changed?

Q. Yes.

A. Substantially, no, except possibly they are making a little better grade of board. I don't know that the paraffin is any better.

Q. Why is it that you feel that regulations are necessary and appropriate now and were not necessary and appropriate in 1929?

A. Well, because then the industry was just starting. I think as it goes on that there will be possibly some out-

fits that may want to put second-hand material in their board—

Q. Could they not have wanted to do that?

A. They could have wanted to do that at the start, but their stake was a little bit too high, then. They realized they had to put good board in at that time because they couldn't substitute. It was just as cheap to buy good board then as it was to buy poor board.

Q. But the effect of poor paper stock or poor manufacture of a container from the Public Health standpoint would have been the same in 1929 as in 1936?

A. Yes, of course; somebody had to pioneer on these things.

Q. You mean nobody knew what the regulations should have been?

A. Yes, somebody had to pioneer.

Q. Somebody had to determine what the regulations ought to be?

A. That is right.

Q. You have never made any mill inspections yourself?

A. Paper mill?

Q. Yes.

A. No, sir, never been in one in my life.

Q. You never determined, then, that virgin pulp was used in the containers used here?

A. No.

Q. Where is the paper now used in Philadelphia manufactured?

A. I couldn't tell you. I am not in charge of that department right now.

Q. Where was it manufactured when you were in charge of that department?

A. As I recollect it, I think the Cherry River, if I am not mistaken, was one of the companies that produced it. I am just thinking if there wasn't another concern; the Regal Paper Company, Regal Mills, and the Sealrite Mills in Fulton, New York.

Q. They make their own paper there?

A. They make their own paper, yes, sir.

Q. Where was that paper converted when you were in charge of this work?

A. You mean converted from the blank into the bottle?

Q. Converted from paper stock into forms for bottles.

A. That occurred somewhere in Philadelphia around 10 or 12th and Race Streets.

Q. You inspected that operation?

A. Yes, we had an inspector up there, I can't remember the name of the place.

Q. What did the inspector up there do?

A. He found that the stuff was handled in a sanitary manner.

Q. I mean specifically what did he do?

A. That I can't tell you.

2383 Q. Who was that man in 1936?

A. That was Dr. Behrens, I think, who went up and made that inspection. He went there regularly. He is no longer with the City.

Q. Where is he now?

A. I don't know where he is now, I can't tell you.

Q. Did he make that inspection under your supervision?

A. That's right.

Q. Does he still live in Philadelphia?

A. I believe so. I haven't seen him since he left the City's service—

Q. He isn't employed by the City?

A. He left the service in the latter part of 1936. I have not seen him since.

Q. Do you know what he did there when he was making his inspections?

A. No, sir, I can't tell you specifically what he did. I didn't watch him.

Q. He was making those inspections under your supervision?

A. That's right.

Q. What were Dr. Behrens' initials?

A. E. E., I think; Edward E.

Q. Now, what investigation was made in 1929 before the use of paper containers was permitted?

2384 A. The first container in Philadelphia was the Sealrite from Fulton, New York. That's a bottle that is manufactured at the plant at Fulton, New York, and shipped down in cartons. We were primarily interested in whether or not the containers as they were filled with milk were sterile, or what their bacteriological condition was, and we took in a number of cartons that were shipped in from Fulton to give to our laboratory, and we took a

number of cartons at random from the Sealrite warehouse in town here, and ran them through our laboratory.

Q. What test did you use?

A. Merely a wash test, washed them out with—

Q. Will you describe that test?

A. I can't. I didn't see it done. The laboratory worker can describe that test.

Q. What were the results of those tests as to bacterial count?

A. Well, now, quoting from memory, of, I think, three hundred containers that were done, the average bacterial count was slightly less than two colonies, and I think about forty per cent of them showed sterile. That is quoting from memory. I think that is substantially correct.

Q. You spoke of successful and unsuccessful installations of paper containers. What was the trouble with the unsuccessful ones?

Mr. Rall: I don't recall any such testimony.

Mr. Schaefer: I think you will find it.

The Witness: Yes, I would like to have it. If we could find that and put it into the rest of the testimony here, I can explain it. I don't—

Mr. Schaefer: Will you check that, Mr. Reporter?

Mr. Rall: I suggest we have a five minute recess while he is doing that.

(Recess for five minutes at 11:10 o'clock A. M.)

Mr. Schaefer: Will you read that part of the testimony, Mr. Reporter, please?

(Testimony was repeated by the Reporter as follows:

"Q. What study, if any, have you made, or investigation of the subject of the use of paper containers for the sale of liquid milk?

2386 A. I have been pretty much interested in the use of single service containers for milk ever since I have been identified with milk inspection work, and since Philadelphia is possibly one of the pioneer cities of paper bottles and had for a long time one of the few successful installations of paper bottles in our city, I had an opportunity to see just how it worked out with not only the containers but with the public reaction, and public health.")

Mr. Schaefer: Now, the question I asked a few minutes ago.

(The question was repeated by the Reporter as follows:

"Q. You spoke of successful and unsuccessful installa-

tions of paper containers. What was the trouble with the unsuccessful ones?"")

Mr. Rall: I object, because he did not speak of any unsuccessful; his testimony was that Philadelphia had one of the successful installations.

By Mr. Schaefer:

Q. Were there any unsuccessful installations?

A. In Philadelphia, no.

Q. Were there any anywhere?

2387 A. Yes, I will tell you of an unsuccessful installation. I want to be fair in this matter. What I consider was an unsuccessful installation was in York, Pennsylvania. That is immediately west of here about sixty or eighty miles. They took paper bottles on there and put them on door steps to replace glass bottles without any attempt whatever to study the problem, and it was unsuccessful. They did learn a lot by experience. So, there is an unsuccessful installation.

Q. That is the only one?

A. That is the only one I knew of. All the others have been exceptionally successful, in my estimation.

Q. Is door to door delivery of paper containers in effect in Philadelphia now?

A. No, sir, not as a general rule. There may be some few cases of door to door delivery, but very few. We don't encourage it.

Q. Why not?

A. We feel that the paper bottle in milk sales is essentially a store proposition where you have to take advantage of your temperature and the insulation of your paper. Unfortunately, if you allow the heat to get into a cold
2388 bottle of milk in paper, it is rather difficult to get the heat out again, and that, of course, is what happens if you put a bottle of milk on a doorstep early in the morning and leave it there during the summer weather until the housewife gets up several hours later and takes it in. Unless the milk dairies go to daylight delivery where they can make a reasonably prompt transfer from refrigerated truck to home refrigerator, we are not in favor of doorstep delivery.

Q. Do you have much trouble with picking up glass bottles from dumps here in Philadelphia?

A. Yes. I dare say I still get an average of fifty requests a month from unemployed persons for permits to

pick glass milk bottles from dumps and sell them back to the dairies, or milk exchange.

Q. And that is a real problem here, is it?

A. Yes.

Q. What is the value of your sales in paper and glass?

A. I can't give it to you up to date, except approximately. There are about eight hundred thousand quarts per day household milk. I should say ten per cent of that is paper. They are rough figures. They are subject to change by Dr. Yunker, if you call Dr. Yunker. He may be able to give you that information.

Q. How many milk borne epidemics have you had 2389 in Philadelphia in the last ten years?

A. Fortunately, none. We had no milk borne epidemics in Philadelphia in the last ten years.

Q. What percentage of epidemics of contagious diseases are usually traced to their source?

A. Very few. Typhoid, generally, yes; Scarlet Fever and the other streps, no, you don't find the source. Typhoid is the only one we have any degree of success in tracing down to its source.

Q. How would it be possible to trace an outbreak of an epidemic of a contagious disease to a paper milk container?

A. Well, very frequently you do find a Scarlet Fever epidemic as a result of a dairyman, or a handler on a farm.

Q. Of course, the contamination that you get there will be—

A. All along the line, that is due to the absence of pasteurization.

Q. How would you trace it to a single container?

A. You could not trace it to a single container. When I said we had no contagious diseases traced to any paper milk container during my time with a hundred and fifty million of them, we didn't have any traced to glass, that is true, too, none of them.

2390 Q. Is it a routine matter when you are attempting to check contagious diseases and their source, to ascertain whether paper or glass is used?

A. Yes, it is. Our medical inspectors investigate in every case of reportable communicable disease, and that takes in the whole list of them. It is practically the same in all municipalities. One of the questions always asked by our medical inspectors is, "What dealer do you get your milk from?" And whether it is glass or paper,

because some of them do sell some small quantity in paper, so that we always check as to whether it is paper or glass. They did that at my request; the chief of that division did that at my request back eight or ten years ago.

Q. But in the case of a single contaminated container, would it be possible as a Public Health proposition to trace the source of an outbreak of disease, or a single case of disease?

A. I wouldn't say a single case, no, but as a group of cases you could trace back to the particular milk dealer.

Q. But there would be no possibility in the case of a single container?

A. No.

2391 Q. Do you make reports on infant diarrhea?

A. Yes, that is made to—

Q. Is that a part of your work?

A. No, it doesn't come under my division. It comes under the division of child hygiene. I don't get those reports except where there is any trouble, then it is brought up at the staff meeting.

Q. That is as a routine matter during the time you were administrator of the milk regulations in the City of Philadelphia you did not get reports of cases of infant diarrhea?

A. No, except where it would get out of line, and then I would get the reports; I mean, it would come up at the staff meeting if it ran more than usual.

Mr. Schaefer: All right, thank you, Mr. Packer.

Redirect Examination by Mr. Rall.

Q. Just a couple of questions. You stated that there are no legislative regulations as to paper bottles. Are there legislative regulations with respect to containers, generally, in which milk may be sold at retail in the City of Philadelphia?

A. Well, now, there is in the new ordinance that 2392 has come in since I let go of the milk division. There is a regulation now in our ordinance that requires that all milk containers and all milk caps, and all milk product containers shall be approved by the Director of the Department of Public Health, and shall be reviewed by our Board of Health.

Q. And at this time there is a large collection of glass containers of all types and paper containers of all types

over at the Department of Health in Dr. Yunker's office which have been submitted for approval?

A. That is correct. They have all been submitted to the Board of Health. I was at the Board meeting, I remember; I believe a number of bacterial tests were made on some new containers that came in at that time, and they have all been reviewed by the Board and approved by the Director.

Q. Does that include a container of the type of Plaintiff's Exhibit 2?

A. Yes.

Q. You stated that you did not make any determination that virgin spruce was used in the manufacture of paper board which went into the paper bottles that constituted your original installation here. Do you mean by that, that you did not personally visit the mill—

2393 A. That's right.

Q. Did you make an inquiry?

A. We made inquiry, but we did not personally visit the mill.

Q. What inquiry did you make in regard to that?

A. From the representatives of the mill, and they told us it was, and we accepted their word.

Q. The bacteriological tests that were made showed a carton reasonably free from bacteria?

A. That is right.

Mr. Rall: That is all.

Recross Examination by Mr. Schaefer.

Q. What do you mean by reasonably free from bacteria?

A. Even virgin spruce board will show some contamination which, strange as it may seem, you can't get below five hundred colonies per gram, we will say, as a standard, but where you use second-hand stock, you can't get anywhere near that, you have a much higher bacteria content. The laboratory can immediately tell whether it is spruce board or not.

Q. You mean by—

A. A microscopic examination will show it.

Mr. Schaefer: That is all, Mr. Packer.

2394 Mr. Rall: Thank you very much.

(The signature of the witness was waived.)

ELKAN H. YUNKER, having been duly sworn, was examined and testified as follows:

Mr. Rall: To save time, the plaintiff agrees that all objections to the materiality of any testimony during this deposition may be made when the deposition is offered in evidence without the necessity of counsel at this time interposing such objection.

Mr. Schaefer: All right.

Direct Examination by Mr. Rall.

Q. Will you state your name?

A. Elkan H. Yunker.

Q. And your address?

A. 2344 North 18th Street.

Q. Philadelphia?

A. Philadelphia.

Q. How old are you?

A. 57.

Q. What is your business or profession?

A. Veterinarian.

2395 Q. Do you occupy any official position?

A. Chief of the Division of Milk, Livestock, Meat and Food, Bureau of Health.

Q. Of the City of Philadelphia?

A. City of Philadelphia.

Q. Will you state just briefly what your education has been?

A. After finishing grammar schools, I graduated from the University of Pennsylvania in the Veterinarian course, and engaged in practice for twelve years, and then was with the State Department of Agriculture, Bureau of Animal Industry, in the control and eradication of infectious diseases in livestock, and then resigned from there to go with the City of Philadelphia in the position of a field man, you might term it.

Q. When was that?

A. I engaged with the State Department of Agriculture in 1918, and came with the City of Philadelphia in 1926.

Q. When did you become chief of the division you mentioned?

A. I was field agent up to 1936; then I was made supervisor of meat inspection in the division, and in September of last year became chief of the division.

Q. I show you a dummy bottle that has been 2396 marked plaintiff's Exhibit 2. Will you state whether or not paper milk bottles of that type are used in the sale and delivery of milk in the City of Philadelphia?

A. They are.

Q. Do you know the extent of that use, either the quantity or the percentage of the total sales in the City that are in that form?

A. I am not in a position to answer that question.

Q. Do you know whether or not this type of container is used outside of the City of Philadelphia?

A. It is used in the City and around the City of Philadelphia, in the State of New Jersey, down at the seashore, Atlantic City, Wildwood, Ocean City; all those places use this container. They are bottled principally in Philadelphia.

Q. State whether or not the use of this container in the City of Philadelphia has official approval.

A. The container has the official approval of the Department of Health.

Q. What company uses this container in Philadelphia?

A. The Sylvan Seal Company uses this type of container.

Q. Have you had any complaints about milk or cream being absorbed by the fiber of the container?

2397 Mr. Schaefer: That is objected to upon the ground of immateriality, and upon the additional ground that such evidence is not competent upon the question of whether or not the container is absorbant.

By Mr. Rall: Q. You may answer, subject to the objection.

A. I have not.

Q. Have you, yourself, used containers of this type in the home?

A. At times, yes; not steadily, but at times.

Q. It is sold largely through stores, is it not?

A. Principally through stores. I don't know of any house to house delivery at the present time with the paper container.

Q. To your knowledge, how long has a container of this type been used for the sale of milk in Philadelphia?

A. This container was approved officially on April 5,

but had been in use in Philadelphia—it had been approved prior to that time; I mean a similar container had been approved prior to that under Mr. Packer's regime, and just what time that happened I am not familiar with, but this container here was officially approved on April 5, of this year, at which time we approved a number of containers.

Q. Is that under the ordinance that Mr. Packer 2398 referred to that now requires the submission for approval of every container?

A. That's right. Our new milk ordinance of 1937 requires all milk containers, all caps, and all printing matter to be approved by the director of the Department of Public Health.

Mr. Rall: That is all.

Cross-Examination by Mr. Schaefer.

Q. You mentioned a date in April; what year is that?

A. 1939.

Q. Did you go with the state immediately after you finished your university work?

A. No, I said I was engaged in practice for twelve years after I graduated.

Q. When did you finish at the University?

A. 1906 I graduated, and I went with the State in 1918, and in 1926 I went with the City.

Mr. Schaefer: That is all, Doctor.

(The signature of the witness was waived.)

2399 FLORENCE JOHNSTON, having been duly sworn,
was examined and testified as follows:

Mr. Rall: To save time, the plaintiff agrees that all objections to the materiality of any testimony during this deposition may be made when the deposition is offered in evidence without the necessity of counsel at this time interposing such objection.

Mr. Schaefer: All right.

Direct Examination by Mr. Rall.

Q. Where do you live, Miss Johnston?

A. 3909 Fairmount Avenue, Philadelphia, Pa.

Q. What is your business or profession?

A. Bacteriologist for the Board of Health.

Q. How long have you been in that position?

A. I have been bacteriologist for one year. I have been in the laboratory for seven years.

Q. Previous to your becoming bacteriologist, what were your duties with the laboratory?

A. I was a technician.

Q. A laboratory worker?

A. Yes.

Q. What schools or universities did you attend?

A. I graduated from Temple University in Philadelphia. Before that I went to the West Philadelphia High School.

Q. Did you receive any degree from Temple?

A. Bachelor of Science.

Q. What was the general nature of the course that you took?

A. I majored in science.

Q. As bacteriologist, under whose direction do you work?

A. I work under Dr. John Laird.

Q. The head of the laboratory?

A. Right.

Q. And Doctor of Medicine?

A. Yes.

Q. I show you a carton that we have marked here for the record Plaintiff's Exhibit 2, and ask you whether you have had occasion to examine in your work cartons of similar type.

A. Yes.

Q. When was that?

A. Well, January 25, and March 15th, and the week of December 25th; it was the last week in December, I haven't the exact date.

Q. How many cartons, and how were they obtained?

A. We received ten cases of cartons with twelve containers in each case, and I took one carton out of each case.

Q. In what form were the cartons when you received them?

A. Like this (indicating), closed with a seal over it.

Q. In other words, it was a carton in the same shape that it is when milk is delivered, except that it had no milk in it?

A. No.

Q. And never had milk in it?

A. No.

Q. In other words, the cases of the cartons you received consisted of milk bottles which were in about the same condition as Plaintiff's Exhibit 2?

A. Yes.

Q. They had been paraffined?

A. Right.

Q. What did you then do with the cartons that you chose at random?

A. I put 99 cc of sterile distilled water in the carton, closed the seal again, and shook it twenty-five times, and then pipetted one cc of water from the carton on a petrie dish.

Q. Will you explain what a petrie dish is?

A. A petrie dish is a round glass dish covered with a clay top to absorb moisture, and then I poured 10
2402 cc's of Agar on to the water, and shook it so it would be disturbed and incubated at 37 degrees for forty-eight hours, and then counted it.

Q. Is that procedure that you have outlined the standard laboratory technic for bacterial counts in milk containers?

A. Yes.

Mr. Schaefer: I object to that upon the ground the witness is not qualified to say.

By Mr. Rall:

Q. You are acquainted with the requirements of the Public Health Service of the United States Government?

A. Yes.

Q. With respect to laboratory technics?

A. Yes.

Q. And the procedure that you have outlined is generally accepted?

A. Yes.

Q. As the proper method of determining bacteria counts on empty milk containers, is that correct?

A. Yes.

Q. Do you have with you the record of what your examination made as you have just stated disclosed?

A. Yes.

Q. Will you state what that was?

2403 A. The results from the examination of the ten—
Q. You have testified, Miss Johnston, to having made successive tests.

A. Yes.

Q. We are interested in knowing when you give us the results of the tests, when you made the particular test.

A. I can't give the exact date on these; it was the last week in December.

Q. Of 1938?

A. Yes.

Q. Was that the test where you had the ten cases and took one from each case?

A. Right.

Q. Will you state where that test was made?

A. In the laboratory of Hygiene, Front and Luzerne.

Q. Do you have a street address for that?

A. No, it is a corner, northeast corner.

Q. State what the result of the test was that you have just referred to.

A. One carton showed one colony, but other cartons showed no colonies.

Q. From your experience in the examination of empty milk containers, is that a high or a low bacterial count?

A. That is low.

2404 Q. Now, you referred to some later tests. What were those, and how did you conduct them?

A. They were conducted in the same way, the carton was sent in along with samples of milk from that particular dairy that uses the carton, and on January 25, one carton was examined, and the count was zero; on March 15, one carton was examined, and the count was zero.

Q. How were these cartons obtained, if you know?

A. The milk inspector goes to the dairy and collects samples during the process of pasteurization, and takes also, an empty carton or an empty bottle.

Q. Are the tests you referred to tests of an empty bottle, or of a bottle which had had milk in it?

A. No, it was empty, before use. It was tested for sterilization of the bottle or container.

Q. Have you made any examination since the Sylvan Seal Milk, Incorporated, started to use this Pure-Pak container? Have you made tests of the bacteria counts of the milk, itself?

A. Yes.

Q. That has extended over a period of six or eight months, has it?

A. Yes, to January and March; before that it was out of the six months' range.

2405 Q. They were using Sealcone?

A. Sealcone. They still use the Sealcone, but they also use this (indicating).

Q. How often do you make bacterial counts on milk of the Sylvan Seal Milk, Incorporated?

A. In March and January; that is, two months lapsed there. I don't believe it is periodic, just when the milk inspector goes through with this.

Q. Do you know about how many tests you have made since they started using this container?

A. Just the two.

Q. January and March?

A. January and March.

Q. What were the results of those tests?

A. Of the empty container?

Q. No, pardon me, I am referring, now, to the test of the milk bacteria counts of the milk, itself. Will you explain just what you did to make the tests on the milk?

A. The milk would come in in the container, and after being shaken twenty-five times, one cc of milk was pipetted into 99 cc's of sterile distilled water, making a dilution of one to a hundred. That bottle was shaken, and one cc was pipetted into a petrie dish, agar is poured into
2406 the plate, and then incubated for forty-eight hours, and counted. The count in January on A milk was 200; that is, 200 per cc of milk, and on B milk it was 3100.

Q. Are you acquainted with the permissible bacteria limits on milk?

A. 30,000 for A milk, and 50,000 for B milk.

Q. These tests that you have referred to were well within the limit of bacteria count?

A. Within the limit.

Q. Are there any other tests you have a record of?

A. On March 15 the A milk gave a count of 100 per cc; B milk, 1300 per cc.

Q. Were those bacterial counts high or low?

A. They are low, lower than the January.

Q. Did you make that test in the same way you have described the milk test?

A. Yes.

Q. Do you know whether or not the method that you

used for making the test on the milk is a standard accepted method of making such tests?

A. Yes.

Q. So far as you know, is it the standard used throughout the country by Public Health laboratories?

A. I don't know what others use.

2407 Mr. Rall: That is all.

Cross-Examination by Mr. Schaefer.

Q. You testified to a dilution of one to one hundred; how many bacteria colonies would you have to have per cc in order to show in a test made that way?

A. I don't understand what you mean.

Q. You have a dilution of one to one hundred.

A. Yes.

Q. How many bacteria would you have to have per cc in order not to find sterility under that test?

A. You would have to have less than one colony.

Q. Per what?

A. Per cc.

Q. Or you would show sterility?

A. Yes—now, wait a minute, no; that is one colony per one hundred. The dilution is one to hundred, and one colony is from that dilution, which would make it one hundred count per cc; so, anything under a hundred per cc would show sterility.

By Mr. Rall:

Q. That is, anything under a hundred, undiluted would, after you diluted it?

A. Yes. Our lowest dilution is one to a hundred.

2408 Mr. Schaefer: That is all.

Redirect Examination by Mr. Rall.

Q. I just want to clear up that one point, I am not sure that it is clear on the record. Before you dilute 1 cc of milk with 99 cc of distilled water—

(Discussion off the record.)

Cross-Examination (Resumed) by Mr. Schaefer.

Q. What is your dilution of the rinse container?

A. There is no dilution.

Q. Will you describe that test again?

A. We use 99 cc of water.

Q. Yes.

A. And take one cc from it, so it is colony per cc.

Q. How many colonies would you have to have in that test in order not to show sterility?

A. One.

Q. One per cc?

A. Yes.

Mr. Schaefer: That is all.

Redirect Examination (Resumed) by Mr. Rall.

Q. Your testimony previously was directed to the
2409 milk test, you thought that Mr. Schaefer was then asking you about the dilution of milk?

A. Right.

Q. And you are now talking about the rinse test for the carton?

A. The carton.

Mr. Rall: That is all. May we adjourn to 1:30, please?

Mr. Schaefer: Yes.

(The signature of the witness was waived.)

(Recess, 11:55 A. M. until 1:30 P. M.)

After recess.

Present: Counsel as before noted.

A. E. CARPENTER, having been duly sworn, was examined and testified as follows:

Mr. Rall: To save time, the plaintiff agrees that all objections to the materiality of any testimony during this deposition may be made when the deposition is offered in evidence without the necessity of counsel at this time interposing such objection.

2410 Mr. Schaefer: All right.

Direct Examination by Mr. Rall.

Q. Will you state your name, please?

A. A. E. Carpenter.

Q. What is your address, your business address?

A. 612 South 24th Street, Philadelphia.

Q. How old are you?

A. 50 years old.

Q. By whom are you employed?

A. Sylvan Seal Milk, Inc.

Q. What is the business of that company?

A. The business of that company is the processing, manufacture and distribution of milk and milk products.

Q. What plants does the company have?

A. It has a plant in Philadelphia at the address I stated, and one in Baltimore.

Q. Where does it sell its milk?

A. Do you want to know the Baltimore address?

Q. No, just the general territory in which it sells its milk.

A. Well, the milk from the two plants, of course, the geographical area is divided. Suppose I give you the Philadelphia area first.

2411 Q. That's fine.

A. We deliver milk daily, every day in the year except Sundays, to all of the Philadelphia area, City of Philadelphia, the City of Trenton, New Jersey; the City of Camden, New Jersey; Atlantic City, New Jersey; and to practically all of the towns and villages in southern New Jersey.

In addition, we deliver milk to the City of Wilmington, Delaware, from that plant, and west of Philadelphia a distance of approximately 50 miles to all the villages and towns in that area.

Q. Are these many or few separate towns that you are referring to?

A. Well, there are a great many towns.

Q. And how about the Baltimore area?

A. From our Baltimore plant we deliver milk to all of the City of Baltimore, and to the City of Washington, and the suburbs of the City of Washington, and also the towns that may be distributed between Baltimore and Washington.

Q. I show you what we have marked on this record Plaintiff's Exhibit 2, and ask you whether your company is now distributing milk in packages of that type.

A. You are referring to the package, or what is
2412 marked on the package?

Q. No, I am just referring to the type of the package.

A. Yes. We are now distributing milk in packages of similar type.

Q. How long have you been doing that from your Baltimore plant?

A. Two years, exclusively.

Q. What machinery do you use in the Baltimore plant for the filling of these containers?

A. We use the machine built by the Ex-cell-o Corporation, which manufactures what is known as the Pure-Pak container.

Q. Which is the container you have in your hand?

A. Which is the container I have in my hand.

Q. In your Philadelphia plant what machinery do you use?

A. We now use this same container and these identical machines, exclusively.

Q. How many machines do you have in Philadelphia?

A. Three.

Q. And how many in Baltimore?

A. One.

Q. What is the approximate capacity of your Philadelphia plant?

A. The approximate capacity of our Philadelphia plant is 120,000 quarts a day.

2413 Q. Since you have been selling milk in Philadelphia in this Pure-Pak container, have you sold a great quantity or a small quantity, or about how much? Just a rough approximation.

A. Well, we have sold hundreds of thousands.

Q. Of quarts?

A. Of quarts.

Q. Will you describe briefly the process by which your Pure-Pak machine manufactured by Ex-cell-o forms, paraffins, and fills and seals these containers?

A. I am not an engineer, but I can tell you approximately how the thing is done.

Q. All right.

A. The flat paper blanks printed are fed into the machine on a tray, about fifty at a time—

Mr. Rall: I will interrupt. Will you sign that?

(A flat paper blank for a milk container was marked Plaintiff's Exhibit 3, and signed by the Notary.)

By Mr. Rall:

Q. I show you Plaintiff's Exhibit 3. When you refer to a flat blank, it is this type?

A. That is exactly what I refer to.

244 Q. Now, continue.

A. The machine automatically forms this blank into a paper container by sealing the bottom. The machine then automatically immerses the paper container into a paraffin bath heated to 177 degrees—

By Mr. Schaefer:

Q. Just a moment. What are you reading?

A. I am reading from notes which I got from my chief engineer within the last hour. I had him check up specifically, particularly as to the degrees of temperature which we were running now, and which is usual. I am an executive vice-president of the company, and I would have to refer to my technicians.

Q. That is, you are not testifying from your own knowledge?

A. Well, I know that this is approximately so; these figures are approximately so.

By Mr. Rall:

Q. You saw the thermometer yourself yesterday with me, didn't you?

A. Yes, I am watching the thermometer all the time. As a matter of fact, the reason I am giving the figure of 177 degrees is because that was the figure that was on the thermometer today, whereas sometimes it is 180 degrees, sometimes it is 185, and it might be 176. I wanted to get the exact precise figure today. That is why I checked these within the last hour with our chief engineer. As a matter of fact, I went out there and helped him do it myself, and saw him do it myself. I didn't want to have any mistake about it.

Q. Continue.

A. Heated to 177 degrees Fahrenheit, and drains—the package drains in a heated chamber at the same temperature. The package is in that chamber a total of 23 seconds. As a matter of fact I clocked that myself within the last hour on the machine in commercial operation. The machine then cools the paraffin container in a cooling unit; it is automatically carried from the paraffin chamber to the cooling chamber, to 40 degrees temperature Fahrenheit.

Q. How long does that cooling process take?

A. I believe it is in there about three or four seconds, something like that; I am not quite sure, I haven't got that figure, but that is my best recollection.

Q. It remains in the cooling chamber from the time it leaves the bath until it goes to the filler?

A. It moves automatically; consequently, the period in the refrigeration chamber is approximately, I would
2416 say, seven seconds, on its way to the filler. The bottle is then automatically filled in the machine with an automatic measuring device.

Q. Is the paper container used for the purpose of measurement in any way?

A. The paper container, itself?

Q. Yes.

A. No, it is an automatic mechanical device. As a matter of fact, that automatic mechanical device has a maximum variation of two centimeters per quart, which is very close.

Q. After the milk is in the container, then what is done with it?

A. After the milk is in the container, it moves along automatically on a chain to the spot where the top is folded by machinery, at which point after folding a pre-heated sterilized wire staple is inserted.

Q. Does that operation on your machine result in the same sort of a seal at the top, and staple, as on Plaintiff's Exhibit 2?

A. Precisely the same.

Q. One edge of the carton is folded over the top, is it not?

A. That is correct.

2417 Q. Then what is done with the filled cartons?

A. It is at that point filled, the top is closed, sealed with the staple in it. It continues along to the little platform where it is taken by the operator and put into paper cartons, twelve per carton.

Q. And these cartons are sealed?

A. These cartons are sealed.

Q. With an adhesive strip?

A. They are sealed with an adhesive strip, so that they are completely sealed, the whole carton is sealed. They travel from there to the cold box on an automatic electric conveyor.

Q. Are the municipalities in which you sell milk and cream ones which regulate the inspection, sanitation and handling of liquid milk and cream through their health departments?

Mr. Schaefer: I object to the competency of that.

By Mr. Rall:

Q. You may answer, subject to the objection.

A. They certainly do. In our Philadelphia plant, alone, we are under at least fifty-five different distinct health officers and jurisdictions.

Q. Have the sales which you have made in these 2418 municipalities in the Pure-Pak container met with the approval and consent of the health authorities?

A. All of them?

Mr. Schaefer: I object to that.

The Witness: All of the fifty-five.

Mr. Schaefer: I object to the competency.

By Mr. Rall:

Q. Do you have photographic copies of certain permissions received from a few of the municipalities for the sale of your product in these containers?

A. Yes.

Q. Are you able to tell us whether or not those are true and correct copies?

A. Yes, I am.

Q. Photographic copies of the originals?

A. Yes, I am.

Q. Do you know where the originals now are?

A. We have them in our possession.

Q. Would you be willing at the time of the trial to send the originals to us if we will substitute copies for you?

A. If you insure their return to us, we will be glad to.

Mr. Rall: Will you mark these Plaintiff's Exhibit 2419 5, and so on?

(Copy of letter from Herbert M. Packer to the Silver Seal Dairy Products Company dated November 27, 1936, was marked Plaintiff's Exhibit 5.

Copy of letter from Dennis J. Sullivan to Edward R. Fuller, President, Silver Seal Dairy Products Co., was marked Plaintiff's Exhibit 6.

Copy of letter to Mr. Fuller, President of the Silver Seal Dairy Products Co. from John C. Foote, Milk Inspector of the City of Wilmington, was marked Plaintiff's Exhibit 7.

Copy of letter from W. K. Moffett, Director of the Bureau of Milk Sanitation, Harrisburg, Pa., to Silver Seal Dairy Products Co., was marked Plaintiff's Exhibit 8.

Copy of letter was marked Plaintiff's Exhibit 9.

Copy of letter from George W. Grim, Milk Control Officer of Milk Control District Number 1, to Silver Seal Dairy, was marked Plaintiff's Exhibit 10.

Copy of letter from Huntington Williams, M. D., Commissioner of Health, Baltimore, to Edward R. Fuller, President, Maryland Seal Dairy Products Corp., was marked Plaintiff's Exhibit 11.)

2420 By Mr. Rall:

Q. I show you Plaintiff's Exhibit 5, purporting to be a letter from Herbert M. Packer to the Silver Seal Dairy Products Company dated November 27, 1936; is that the same company, or its predecessor?

A. It is the same company; the name was changed, that is all.

Q. From Silver to Sylvan?

A. From Silver Seal Dairy Products Company to Sylvan Seal Milk.

Q. But it is the same company?

A. It is the same company, no change otherwise whatsoever.

Q. At the time that letter was written did the City of Philadelphia have any form of permits for milk containers except simply by correspondence? In other words, what is the evidence that you have—

Mr. Schaefer: I object.

By Mr. Rall:

Q. —of the approval by the City of Philadelphia of the use of the Pure-Pak container?

A. My recollection is that we have a letter of approval by the City of Philadelphia for the use of that container.

Q. Is this the letter you are referring to? (Indicating.)

2421 A. This is the letter that I am referring to specifically for that purpose.

Q. And no other permit was granted at that time?

Mr. Schaefer: I object to leading, and to any further leading.

By Mr. Rall:

Q. Was there any other different permit issued than is stated in that letter?

A. Not to my knowledge.

Q. I show you Plaintiff's Exhibit 6, purporting to be a letter from Dennis J. Sullivan, Deputy Health Officer of Jersey City, New Jersey. State whether or not that is a

photographic copy of a letter bearing the signature of Mr. Sullivan.

A. Yes, it is.

Q. Did you receive any permit other than that letter to sell milk in these containers in Jersey City?

A. No, not to my knowledge.

Q. I show you Plaintiff's Exhibit 7, purporting to be a letter to Mr. Fuller, President of your company, from John C. Foote, Milk Inspector of the City of Wilmington, and ask you whether or not you received any permit other than that for the sale of milk in Wilmington in these containers?

2422 A. Not to my personal knowledge.

Q. You were an official of the company at the time this letter was received, were you?

A. I was.

Q. Did you see the letter at or about the date it bears?

A. I did.

Q. Are you acquainted with the signature of Mr. Foote?

A. I know Mr. Foote personally, and I recognize his signature.

Q. And that signature is a photograph of his signature, on Exhibit 7?

A. That is correct.

Q. Plaintiff's Exhibit 8 purports to be a letter from W. K. Moffett, Director of the Bureau of Milk Sanitation. When was the original of that letter received, if you know?

A. Of the Director of Sanitation of the Commonwealth of Pennsylvania at Harrisburg.

Q. When was that letter received?

A. December 1, 1936.

Q. It is dated that day; was it received at that time?

A. It was received within a day or two.

Q. Did your company receive any other permit for the sale of milk in the Pure-Pak containers in the
2423 State of Pennsylvania?

A. Not to my knowledge.

Mr. Rall: I am withdrawing Plaintiff's Exhibit 9.

By Mr. Rall:

Q. I show you Plaintiff's Exhibit 10, purporting to be a letter from George W. Grim, milk control officer of Milk Control District Number 1, dated December 2, 1936. Are you acquainted with Mr. Grim's signature?

A. Yes, and with Mr. Grim, personally.

Q. Will you tell us briefly for the record what Milk Control District Number 1 consists of?

A. Milk Control District Number 1 consists of the territory continuous to the Main Line of the Pennsylvania Railroad, running from Philadelphia directly west for about fifty miles, including all the towns contiguous to the railroad.

Q. Did you receive any permit from Milk Control District Number 1 other than that letter?

A. Not to my knowledge.

Q. I show you Plaintiff's Exhibit 11, purporting to be a photograph of a letter from Huntington Williams, M. D., Commissioner of Health, Baltimore, dated January 5, 1937; are you acquainted with Dr. Huntington Williams' 2424 signature?

A. I am acquainted with Dr. Williams' signature, and with Dr. Williams personally.

Q. Is that a photograph of a genuine signature?

A. It is.

Q. When was that received?

A. About January 5, 1937.

Q. The date it bears?

A. The date it bears.

Q. Did you receive any permit from the city of Baltimore approving the use of this Pure-Pak container other than that letter?

A. Not to my knowledge.

Mr. Rall: I deliver Exhibits 2, 3, 5, 6, 7, 10 and 11 to Defendants' counsel for use in cross-examination, and intend to produce the originals on the trial, and then by comparison show that they are the same.

By Mr. Rall:

Q. Have you had any complaints from your customers, or from any health authorities about the absorption by the Pure-Pak container of the milk or cream contained in it?

Mr. Schaefer: That is objected to on the ground 2425 that the testimony which would be adduced by complaints of health authorities cannot be adduced from this witness and be the best evidence.

By Mr. Rall:

Q. You may answer the question, subject to the objection.

A. No complaints of that character whatsoever since

we have been using the Pure-Pak container from either the health departments or the consumers.

Mr. Rall: You may cross-examine. I will offer these exhibits that have been marked, and that I have submitted to you.

Cross-Examination by Mr. Schaefer.

Q. In your experience, Mr. Carpenter, do all municipalities manifest official permission to distribute milk in the manner indicated in these exhibits?

A. Let me understand your question correctly. I don't quite get your question.

Mr. Schaefer: Will you read the question?

(The question was repeated by the Reporter as follows:

"Q. In your experience, Mr. Carpenter, do all municipalities manifest official permission to distribute milk in the manner indicated in these exhibits?")

2426 A. I want to answer that exactly. Did you say—repeat that once more,

(The question was repeated by the Reporter.)

A. All of the principal municipalities do.

By Mr. Schaefer:

Q. That is, in your experience, they usually do it by a rather chatty letter addressed to an official of the dairy?

A. I would hardly consider that any of the letters that we received could be described as chatty.

Q. They ordinarily do it by sending you letters of this type?

A. They have the power to—

Q. Ordinarily?

A. They have the power to keep us—

Q. Will you just answer the question? Reread it.

(The question was repeated by the Reporter as follows:

"Q. They ordinarily do it by sending you letters of this type?")

A. Yes.

By Mr. Schaefer:

Q. What is the name of the engineer who prepared the memorandum to which you referred in your direct examination?

2427 A. His name is R. T. Wetteland.

Mr. Schaefer: Will you mark this Defendants' Exhibit 1, please?

(A card was marked Defendants' Exhibit 1-A; a report

consisting of two pages was marked Defendants' Exhibit 1, and Defendants' Exhibit 1-B.)

The Witness: I only quoted from part of that.

By Mr. Schaefer:

Q. Now, I show you Defendants' Exhibit 1, 1-A, and 1-B. Are those the documents to which you referred on your direct examination?

A. What documents?

Q. Did you have any other document in your hand when you were testifying?

A. No.

Q. Then those are the documents to which you referred on your direct examination, aren't they? Are they or are they not?

A. As I recollect, I didn't refer to any documents. I referred to the specific mechanics of the course of a paper container through the Pure-Pak machine.

Q. Is that all you have to say?

A. Yes.

2428 Q. And that is what you testified was prepared by your engineer whose name you mentioned a minute ago?

A. That is right, in connection with my own observations of the machine.

Q. How did your engineer happen to write:

"Paper blank similar to Dean-Fieldcrest blank, Plaintiff's Exhibit 3, which I shall show you is placed on a tray of machine," and so on?

A. Because I have one of those blanks in the office, as we are in the habit of obtaining blanks of all—

Q. When did your engineer propose to show you that blank?

Mr. Rall: Are you talking about the typewritten part or the handwritten part?

Mr. Schaefer: I am talking about this paper.

Mr. Rall: He was referring to the pencil notation. I sent him that typewritten document.

Mr. Schaefer: Why didn't he say so?

Mr. Rall: You asked him what he was referring to in his direct examination. He said he was referring to some notes, which are pencil notes on this paper.

2429 The Witness: I didn't refer to that document at any time. There was no intention to refer to that as a document.

Mr. Schaefer: All right, that is all.

Redirect Examination by Mr. Rall.

Q. In whose handwriting is the pencil portion?

A. My engineer's.

Q. And the typewritten part was sent to you by whom?

A. By you.

Q. When?

A. This morning.

Q. By Western Union?

A. By Western Union.

Mr. Rall: I offer in evidence DEFENDANTS' EXHIBITS 1, 1-A and 1-B.

(The signature of the witness was waived.)

Reported by

Lewis A. Bicking.

2430 State of Pennsylvania }
County of Philadelphia } ss.

I, Lewis A. Bicking, a notary public within and for the State of Pennsylvania, do hereby certify that the foregoing depositions of Herbert M. Packer, Elkan H. Yunker, A. E. Carpenter, and Florence Johnston, were taken on behalf of the Plaintiff in the above entitled cause in pursuance of notice served on the Defendants on April 15, 1939, at the offices of Dechert, Smith and Clark, Esqs., 1320 Packard Building, Philadelphia, Pa., that said witnesses were by me duly sworn to testify the whole truth, and being carefully examined, deposed and said as in the foregoing depositions set out.

I further certify that the plaintiff and the defendants were represented by counsel during the taking of said testimony, and that signatures to the depositions were waived, and the same has been retained by me for the purpose of sealing up and directing the same to the Clerk of the Court as required by law.

I further certify that I am not connected by blood or marriage with either of said parties, nor interested directly or indirectly in the matter in controversy.

2431 In Testimony Whereof, I have hereunto set my hand and affixed my seal of office at Philadelphia, Pennsylvania, this 16th day of May, 1939.

Lewis A. Bicking,
Notary Public.

(Seal)

My Commission Expires Aug. 2, 1942.

2489

PLAINTIFF'S EXHIBIT 4.

4/27/39

Lewis A. Bicking.

Report

to

Dr. Herman N. Bundesen

by

Dr. Lloyd Arnold

on a

**Single Package Fabricated Paraffined Paper
Container for Fresh Fluid Pasteurized Milk.**

December fourth, 1937

2490

Report

to

Dr. Herman N. Bundesen

President, Chicago Board of Health

on

**Pure-Pak Cardboard Fabricated Single Service
Container for Fresh Fluid Milk.**

Prepared by

Dr. Lloyd Arnold

2491

INDEX.

**Report of Observations with General Recommendations.
Literature Citations.**

**Dr. Sanborn's Report on Microbiological Flora of Pure-Pak
Cardboard Stock Paper.**

Quality of Paraffin Used for Coating Containers.

Adhesives Used in Pure-Pak Container.

Compression Tests for Stability of Container.

Durability of Container Filled with Milk.

**Dr. Prucha's paper on "Certain Sanitary Aspects of the
Use of Paper Milk Containers."**

**Professor Bartlett's Article on "Increasing the Efficiency
of Milk Distribution."**

**Sideview Photograph of Pure-Pak Installation.
(complete and in operation.)**

**2492 Report to Dr. Herman N. Bundesen, President
Chicago Board of Health**

on

**Pure-Pak Cardboard Fabricated Single Service Container
for Fresh Fluid Milk.**

Prepared by Dr. Lloyd Arnold.

Cardboard of a satisfactory sanitary quality can be obtained and used for this purpose. The Breed-Sanborn group have not yet established standards for microbic content of cardboard used for paper containers for milk. At the July 12, 1937 Geneva conference a tentative standard of 500 bacteria per gram of paper container stock was suggested. At a conference I held with Doctors Breed and Sanborn in Geneva on November 15th they stated that their present "standard" would be less than half of the above. It seems that a standard will be developed to allow a certain number (50 to 100) common soil spore bearing types of bacteria per gram of paper stock, all vegetative forms of bacteria will be prohibited.

A report from Doctor Sanborn is enclosed. Previous analysis shows the cardboard used for Pure-Pak containers to have on an average of 35 bacteria per gram of paper stock. A report of an operation at this mill run on November 17th last, shows an average of 28 bacteria per gram, with two samples of eleven samples sterile.

This paper stock is shipped in closed packages protected from contamination to the Chicago Carton Company, 4200 South Crawford Avenue, Chicago, for conversion into containers. These containers are cut, printed and glued, 2493 shipped to the dairy as flat blanks enclosed in tightly wrapped packages to protect them from contamination. The Chicago Carton Company maintains a sanitary plant and exercises extreme care in converting the stock to blank containers.

These blanks are fed automatically into the Pure-Pak machine. The paraffin used is U. S. Pharmacopiae X standard quality (See Detroit Testing Laboratory Report of May 8, 1936 attached). The paraffin is maintained at the high temperature possible to prevent oxidation (175—185° F.), higher temperatures are impractical because of decomposition of paraffin.

The formed and paraffin container is automatically cooled

and filled with milk and sealed on a continuous belt line system.

The sealing is very effective. Compression tests made by the University of Detroit (November 26, 1937) Engineering Laboratory are attached, including empty and filled sealed containers.

The durability of the container filled with milk and kept at 100° F. is covered by an attached report (Huffman, December 4, 1936).

Copies of the report made by Dr. Prucha on "Certain Sanitary Aspects of the Use of Paper Milk Containers" presented before the Dairy Manufacturers Short Course (November 17-20, 1937) at Urbana are enclosed for your information. A careful study was reported at the same meeting by Dr. Bartlett on "Increasing the Efficiency of Milk Distribution". A copy of this paper is also attached. Both papers have a bearing on the use of single package containers for fresh, fluid milk.

2494 I spent Friday afternoon, November 26th, with Dr.

Henry Vaughn, Mr. Palmer and Dr. Meader of the Detroit Board of Health. The Risdon Dairies in Detroit started last March using the Pure-Pak container. Rinse tests and holding quality of milk was done by Mr. Palmer and proved to be satisfactory. The daily unit packages has increased from 8,000 a day last March to 40,000 a day at the present time. The product meets all requirements of the Detroit Board of Health. Dr. Vaughn and Mr. Palmer consider this package satisfactory, safe and hygienic.

I observed one day's record of the dairy in Detroit in which 42,000 containers were filled, there were 92 defective packages of this number. Upon superficial inquiry I was unable to find any complaints as to "leakers" and other defective packages in the wholesale and retail handling of this product.

From my personal investigations and observations I see many advantages to the single service paraffin coated milk containers for fresh-fluid milk. I have attached the evidence I have been able to collect to substantiate this opinion.

Lloyd Arnold.

2495

References to Literature.

Sanborn, J. R.: Microbiological Control in the Manufacture of Paper Wraps and Containers for Food.

Industrial and Engineering Chemistry, 29:949-951 (1937).

Sanborn, J. R.: Development and Control of Microorganisms in a Pulp and Paper Mill System.

Jour. Bact., 26:373-378 (1933).

2496 Sanborn, J. R.: Paper Mill Sanitation in Relation to the Manufacture of Food Wraps and Containers.

Reported at 33rd Semi-Annual Meeting, Geneva, New York, June 5, 1937.

Abst., Jour. of Bact., 34:347 (1937).

The making of paper containers for such a perishable and easily contaminated product as milk gives paper manufacture increased public health significance. Certain types of container board are heavily contaminated with coliform organisms; in other cases spore-bearing bacteria, micrococci, or filamentous fungi may predominate.

Uncontrolled development of microorganisms in pulp and paper mills presents serious obstacles to quality in paper wrappers and containers. Accumulation of growth as stringy or gummy masses interfere with production and result in spotting and in lack of uniformity and strength. Discoloration and decomposition processes in stored pulp or stock definitely affect quality, as well as the presence of objectionable odors, which are sometimes transferred from pulp to finished paper.

Strict microbiological control of pulp and paper operations is successful in preventing such difficulties and also sets a sanitary standard for plants engaged in fabrication and handling of food wraps and containers. Programs for control include general sanitary practices, systematic slime prevention measures, chemical treatment of process water designed to reduce bacterial numbers in pulp, and handling of sheets so as to render them suitable for direct contact with such foods as milk and meat. Wrapper and container board for foods should, upon leaving a mill, conform to sanitary and bacteriological standards.

2497

Conference on Sanitation of
Paper Milk Containers
New York Agricultural Experiment Station
Geneva, New York, July 12, 1937

Reported By
Dr. Robert S. Breed, Chairman
Geneva, New York

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703 Anacapa Street, Santa Barbara, California

2498

Conference on Sanitation of Paper Milk
Containers

A conference called to discuss problems of sanitation involved in the manufacture and use of paper containers for milk and cream was held at the New York Agricultural Experiment Station, Geneva, New York, on July 12, 1937. The rapid development in the use of containers of this type for milk and cream has caused many public authorities to consider whether these containers are adequately protected against contamination during their manufacture and during the interval between the time when they are completely fabricated and their closure after having been filled with milk. Nearly all of these paper containers provide uncontaminated pouring lips so that this part of the problem is usually solved with reasonable satisfaction.

This sanitation problem is a particularly pressing one in New York State because of the rapid development in the use of such containers in New York City where the City Department of Health reports that approximately one-fourth of the individual containers used each day for the packaging of milk in that city are made of paper. These containers are largely being used in schools and in store trade where the single service feature makes a definite appeal to the consumer. One milk plant has been developed

where milk is packaged in paper containers only, 250,000 of these containers being used daily.

Not only the New York City Department of Health, but also the New York State Department of Health and Departments of Health in large cities where these containers are in use are considering revisions of their present milk codes as these have been made to cover the use of glass and metal containers only. New problems are raised by the use of single service, moisture-proof paper packages. The procedure tentatively approved by the American Public Health Association for determining the number of bacteria present in milk bottles was developed for use in rinsing glass containers. It is not well suited to the examination of paper containers inasmuch as these containers normally show fewer bacteria per cc of capacity than do glass bottles as washed in the average milk plant.

Mr. W. D. Tiedeman, Associate Referee for the Standard Methods of Milk Analysis Committee, has therefore recommended that containers yielding low counts be rinsed with 10 cc quantities of sterile rinse water and that the entire amount be divided among three petri plates of the ordinary size and type. The total number of colonies that develops on the three plates gives the count per container. Research carried out at the New York Experiment Station by Dr. J. R. Sanborn, has shown that the paper board out of which these containers are made normally gives counts less than 500 per gram of disintegrated stock. This has led to the suggestion that some bacteriological standard should be established for paper board used for making food containers. Methods whereby public health men can determine that the paper stock is made from clean virgin pulp are also being developed.

This situation led to the preparation of an outline of "Principles of Sanitation that Should Govern the Manufacture and Use of Paper Milk Containers." This outline was made the basis for discussion and criticism at the conference held at Geneva, New York. Representatives of the following manufacturers of paper milk containers were present: American Can Company, American Sealcone Company, Dixie Vortex Company, Mono-Service Company, Ex-Cell-O Corporation, Purity Paper Vessels Company, Reed Container Company, Safety Service Milk Bottle Corporation and the Sealright Co., Inc.; also, manufacturers of paper board used in making these containers, makers of

paper cups, secretaries of interested paper and pulp and container associations; milk dealers using paper containers; and representatives from seven national, state and municipal health groups. Brief impromptu reports on investigations completed or in progress were made by Dr. F. W. Tanner of Urbana, Mr. W. D. Tiedeman of Albany, and Prof. John W. Rice of Bucknell University. Those present entered freely into the discussion of sanitation problems and as a result several improvements were made in the outline as given below.

It was pointed out that this outline was not drawn up in a form that would be satisfactory for use as a municipal ordinance, and it was suggested that the Baltimore City ordinance (Milk Sanitarian, Vol. 6, May 1937, p. 22) deserved study in this connection as it had been drawn up after a careful consideration of the problems involved. This ordinance forbids the use of completely prefabricated containers as it requires the paraffining of the containers in the milk plant. It was reported by Dr. Sanborn that a comparative study of finished containers had shown that some of the prefabricated containers were in a more satisfactory bacteriological condition when examined just as they were to be filled with milk than freshly paraffined containers. From other reports it also became evident that this ordinance places too great reliance on paraffining just before the container is filled as a sterilization procedure. From the time the paper board is made until it is paraffined, it should be handled in as cleanly a manner as possible, even aseptically where this is feasible.

The Baltimore ordinance does not mention the hot melt or thermoplastic types of adhesives which are considered to be even more desirable than the type of adhesive specified as they do not require the use of a chemical preservative to prevent fermentation. It was generally felt that ordinary animal glues ought not to be permitted under any condition. The statement regarding white spruce pulp was criticized by practical paper men as being too specific. So-called white spruce pulp in eastern U. S. A. normally includes some hemlock, balsam and other coniferous woods, while the newer southern yellow pine pulps are also being used to good advantage in making board for food containers. Anything that would tend to make the paper pulp industry independent of imported pulps would seem to be desirable from the public health standpoints as it would

tend to prevent the sudden use of substitutes in case war or other changes should cause interruption of normal channels of trade.

In order to develop further discussion of the sanitation problems involved, the revised statement of principles of sanitation is submitted for publication. These principles are drawn up on the assumption that the use of paper milk containers of both the prefabricated type and the type which is fabricated in the milk plant are to be permitted. It is believed that as manufacturers continue to make progress in methods of manufacture and handling, it will soon be possible to adopt more stringent standards. The paper milk container seems at last to be with us to stay and this seemed to be the judgment not only of the manufacturers, but also of the public health men present at the Geneva conference.

Paper Containers for Milk.

Principles of Sanitation to be Observed in Their Manufacture and Use.*

Item I.

Paper Container Stock.

Containers shall be made from virgin chemical or mechanical pulp. Virgin pulp is pulp that has not previously been used for commercial purposes. Board prior to moisture-proofing shall not at any time have a count exceeding 500 colonies per gram of disintegrated board.**

Unless used immediately after manufacture, container board shall be wrapped, sealed and protected until used. When used, the outside sheet on rolls or the top and bottom sheets of sheeted stock shall be discarded in all cases.

Public Health Reasons.

(a) The use of stock which has previously been used for commercial purposes (secondary stock) is not consistent with standards of food quality. Even if sec-

* As revised at a Conference held at Geneva, N. Y., July 12, 1937. Originally prepared by J. R. Sanborn, M. W. Yale and R. S. Breed.

** Standard given is suggestive only. Before adoption further research and standardization of methods for determining the bacterial count are necessary.

ondary pulp is completely sterilized during recovery, its miscellaneous content of foreign matter 2499 and dirt render it unsuitable for use in milk container stock.

(b) Contamination of rolls of paper, or sheeted stock occurs most readily at ends or the top or bottom sheets, hence the advisability of complete wrapping protection and sealing of these rolls or packs. Discarding the outside sheets of rolls or top and bottom sheets of sheeted stock, is a desirable precaution.

Satisfactory Compliance: For the above reasons, this item shall be deemed to have been satisfied when:

(a) Mills produce container board from virgin pulps.

(b) Mills require personal cleanliness among operators and consistently practice plant sanitation for the purpose of producing board low in dirt count and free from slime spots.

(c) Rolls or sheeted stock are wrapped immediately after manufacture in strong, clean wrappers, or utilized before there is opportunity for contamination from dust, dirt, or handling.

Item 2.

Process of Conversion—Where Stock Is Made Directly Into Containers

When container board reaches conversion plant, it shall be considered that this paper has received a bactericidal treatment. All stock and containers shall be handled mechanically so far as possible. Following fabrication, until final sealing in milk plant, container surfaces with which milk or milk products come in contact shall be protected from contamination. This shall be done through the use of mechanical equipment, careful handling, sealed sanitary shipping cases, or a closure for each container.

Public Health Reasons: Human handling of container board increases opportunity for contamination which is reflected in the numbers and types of microorganisms present in waxed containers. If stock in conversion and milk plants is not protected from contamination, the value of germicidal treatment and sanitary precautions at pulp and paper mills will be partly or entirely nullified. Moisture-proof treatment may not completely sterilize containers.

The chief purpose of the latter treatment is to render containers uniformly non-absorbent. Fortunately the same process may act as a secondary line of defense against contamination with microorganisms.

Satisfactory Compliance: This item shall be deemed to have been satisfied when:

(a) Paper direct from pulp and paper mill is unwrapped in conversion plant close to mechanically-fed machine and sheets exposed to unavoidable manual contact are discarded.

(b) Entire conversion process, methods of packing and shipping are conducted in such manner as to protect container from contamination, particularly human contact contamination.

Item 3.

Process of Conversion Where Container Is Preformed in a Collapsed or Nested State Before Final Sealing: Throughout the processes of printing, folding, sealing, adhesive application, or packing prior to shipment to milk plant, all stock and containers shall, as far as feasible, be handled mechanically and be suitably wrapped or packaged before shipping.

Packaged container stock at milk plant shall be kept in a clean, dry place and opened only for immediate use. Where it is necessary to form or manipulate containers, all surfaces with which milk or milk products may come in contact, shall be protected from human handling.

Public Health Reasons: It is important that, during intermediate stages in conversion processes, manual contacts with container board be reduced to a minimum. In order to guard against promiscuous handling and exposure to dirt, it is advisable to keep board not in actual use, packaged and sealed. Fabrication, printing and sealing of containers should be conducted in such manner as to protect them from contamination.

Satisfactory Compliance: This item shall be deemed to have been satisfied when:

(a) Plants for printing, folding, sealing, and packing containers or other operations prior to delivery to milk plants, handle container board mechanically so far as possible and, at the conclusion of the operations, package the stock in suitable wrappers, cartons, or tubes.

(b) Milk plants protect packaged containers and contents from injury or abuse and complete fabrication, filling, and sealing of containers in such manner as to protect them from contamination.

Item 4.

Moisture-Proofing: Moisture-proofing of containers shall be accomplished by means of fully refined paraffin wax or other suitable materials which are odorless, tasteless and non-toxic. The operation of paraffining machines shall be supervised by competent mechanics.

Public Health Reasons: Fully refined paraffin is the only grade acceptable to and consistent with food uses. It is of fundamental importance that containers be rendered completely non-absorbent by machines that operate properly and that the moisture-proofing material be odorless, tasteless and non-poisonous.

Satisfactory Compliance: This item shall be deemed to have been satisfied if the purpose and quality of the treatments described above are strictly maintained.

Item 5.

Adhesives: The gluing or sealing of container board shall be accomplished by means of non-fermentable adhesives, including synthetic, thermoplastic varieties, or such types having cereal or casein bases as produce rapidly-drying films which resist decomposition, dissolution, and leaching. Adhesives must not contaminate containers with microorganisms.

Public Health Reasons: Adhesives are as a class notoriously susceptible to decomposition by microorganisms. Some of these highly perishable materials, such as animal glue, are obviously not suitable for use in food containers. A number of adhesives, represented by products employing cereal or casein bases, while ordinarily fermentable, may be produced in forms or grades which are non-odorous, resistant to moisture, and unsuitable for the development of microorganisms.

Satisfactory Compliance: In accord with the above account, this item shall be deemed to have been satisfied if:

(a) Rapidly drying adhesives having cereal or casein bases which resist fermentation are used to form liquid-

tight joints; these adhesives do not contaminate containers with microorganisms.

(b) Adhesives employed be of hot melt or thermoplastic types.

Item 6.

Germicides: Germicidal and bacteriostatic agents that are toxic to human beings or that affect milk in any way, as in taste, odor or nutritional qualities shall not be used in board, adhesives, or moisture-proofing materials for milk containers.

Public Health Reasons: Substances introduced into materials of which containers are composed, which might conceivably exert preservative or antiseptic effects may affect the nutritional value of milk and be instrumental in producing off-flavors or odors. In some cases injurious effects on human beings from the use of such antiseptics have been demonstrated. It is necessary that substances of this class for use with containers be free of any toxic associations.

Satisfactory Compliance: This item shall be deemed to have been satisfied when:

(a) No germicidal or bacteriostatic agents are used unless they have been shown to be non-toxic and without effect on milk through the use of physical, chemical and biological tests, supported by clinical evidence.

Item 7.

Handling of Paraffin: Paraffin in the solid state shall be shipped and stored in cool, clean, dry places, protected from dirt and isolated from odorous materials. Paraffin in the liquid state shall be kept, at all times, in clean and sanitary containers. Waxing machines and baths shall be cleaned at regular intervals unless cleaning devices such as continuous filtration, are employed. In no case shall freshly prepared, new paraffin be introduced into used paraffin which has become discolored, oxidized or dirty. Odorous substances such as ordinary kerosene and gasoline shall not be used on or about conversion machines.

Public Health Reasons: Paraffin absorbs odors and for the sake of milk quality it is advisable that special storage facilities be provided, which will also protect wax from promiscuous handling and exposure to dirt.

Due to the susceptibility of heated paraffin to oxidation, a well-regulated program of paraffin utilization should be followed to avoid over-heating, prevent contamination of new paraffin with partly oxidized wax and to eliminate the possibility of coating or impregnation of containers with discolored, dirty or oxidized wax.

Satisfactory Compliance: This item shall be deemed to have been satisfied if:

2500 (a) Slabs of paraffin are ~~shipped~~ and stored in clean, cool, dry places and removed from storage only as required for coating or impregnation bath.

(b) Paraffin for coating, impregnation or storage is held at temperatures and for period of time which will not impart flavors or odors to paraffin or milk.

(c) Molten paraffin is held in clean sanitary containers.

(d) Paraffin bath or tank is cleaned by continuous filtration or at regular intervals depending on such evidences of deterioration as discoloration and presence of dirt or fiber.

(e) The possibility of mixing new paraffin with a product that is unfit for use is avoided.

Item 8

Shipping Cases And Storage For Pre-made Containers: Cases for shipping empty containers shall be constructed of container board or wrapping designed to adequately protect containers from injury or abuse due to tearing or breaking. Containers shall be stored in sealed, dry, unbroken cases, in a dry place.

Public Health Reasons: Damage to shipping cases frequently exposes containers to conditions which may result in serious contamination from dirt, wetting and human contact.

Satisfactory Compliance: This item shall be deemed to have been satisfied when:

(a) Shipping cases are well enough constructed and sealed to resist the handling they receive in transit without injury.

(b) Containers are stored at all time in sealed cases in places having dry floors and where there is no washing down of the floors while cartons are in storage.

Item 9

Cartons For Shipping Filled Containers: Only clean cartons shall be used for shipping-filled containers. Returned carriers shall be handled or stored so as not to become wet, dirty, or damaged before again being used.

Public Health Reasons: The re-use of shipping cartons may easily become a menace to milk quality and health. The abuse of these boxes arises from lack of care in handling and storing returned cartons. They may be carelessly thrown aside, allowed to become wet, dirty and mildewed. The packing of new containers of fresh milk in abused cartons is a practice which should not be allowed as it may cause addition of organisms and dirt.

Satisfactory Compliance: This item shall be deemed to have been satisfied when:

(a) New paper cartons are used for single delivery to retailer.

(b) Milk plant has adequate and dry storage facilities for returned cartons and uses only neat and clean, uninjured boxes.

Item 10

Examination Of Containers: Bacterial plate counts shall be made in conformity with the latest standard methods recommended by the American Public Health Association.

Public Health Reasons: Consideration of possible sources of contamination during container manufacture, renders it advisable to reduce to a minimum the number of organisms present. While the likelihood of contamination by disease organisms is slight, bacteriological control of plant sanitation is necessary.

Satisfactory Compliance: This item shall be deemed to have been satisfied when:

(a) Quart containers develop not more than 1,000 colonies, pint containers develop not more than 500 colonies and half-pint containers develop not more than 250 colonies as determined by the Standard Methods of the American Public Health Association.*

* Sanitary conditions in pulp and paper mills, container manufacturing plants and dairies usually enable paper containers to meet a standard of less than 100 colonies per container. Standards given are suggestive only. They are in accord with the standards suggested by the American Public Health Association for glass bottles. Standard Methods of Milk Analyses, 7th Ed., 1938.

Item 11

Quarantined Residences: The delivery of milk or milk products to and the collection of milk or milk-products containers from quarantined residences shall be subject to the special requirements of the health officer. It is recommended and urged that single service containers be used for retail delivery of milk and milk products under these circumstances. In case of wholesale delivery, to hospitals, etc., caring for infectious diseases carrier cartons as well as individual containers should be destroyed.

2501 I. Microbiologic flora in cardboard used for containers:

Sanborn letter of November 24, 1937.

Average of 35 viable spores per gram of finished cardboard.

2502 (Letterhead of New York State Agricultural Experiment Station Geneva, N. Y.)

November 24, 1937.

Mr. George D. Scott
The Ex-Cell-O Corporation
1200 Oakman Boulevard
Detroit, Michigan.

—Confidential—

Dear Mr. Scott:

In accord with your request, we herewith submit the following progress report on certain aspects of our pulp and paper mill investigation.

The following table presents incomplete results from the two best mills out of eight that we have examined. It represents, therefore, only a very limited survey. These counts were obtained on standard agar at 32° for 3 days.

Bacteriological Studies of Container Board

Samples	Colonies Per Gram	Samples	Colonies Per Gram	Samples	Colonies Per Gram
Cherry River Ex- Cell-O Board				Cherry River Container Board C.	
Test 1	117	Test 6	67	Test 1	150
" 2	5	" 7	64	" 2	130
" 3	0	" 8	61	" 3	256
" 4	0	" 9	60	" 4	241
" 5	73	" 10	53	" 5	125
" 6	108	" 11	51	" 6	148
" 7	21	" 12	44	" 7	150
" 8	11	" 13	43	" 8	129
" 9	32	" 14	43	" 9	216
" 10	43	" 15	36	" 10	268
" 11	0	" 16	35	Mill I	
" 12	7	Cherry River Container Board B.		Milk Container Board D.	
" 13	77	Test 1	97	Test 1	143
" 14	22	" 2	86	" 2	112
14/516/35		" 3	73		
Cherry River Milk Container Board A.		" 4	65		
Test 1	177	" 5	21		
" 2	129	" 6	0		
" 3	85				
" 4	84				
" 5	71				
2503					
Test 3		109		Test 13	49
Test 4		100*		Test 14	44
Test 5		96		Test 15	43
Test 6		96		Test 16	42
Test 7		90		Test 17	36
Test 8		75		Test 18	32
Test 9		62		Test 19	26
Test 10		60*		Test 20	22
Test 11		54		Test 21	11
Test 12		54		Test 22	6*
—Results from another laboratory				Test 23	0

These results are representative of the counts obtained from board samples that were actually a part of the investigation. Our results, viewed as a whole, show wide variations, evidently due to inconsistencies in microbiological control. Seasonal variations in water supplies, temperatures, slime formation, local differences in mill practices and procedures undoubtedly account for lack of consistency in counts on disintegrated board. We hope that as a result of our investigations, pulp and paper mills will be able to achieve greater uniformity in the finished board. Our work with the Cherry River mill along these lines has just started. The results of the tests on samples collected at the mill on November, 17th are as follows:

Sample	Colonies per cc. 32°/72 hours
Raw water	3,000
Chlorinated, filtered water	3
Vat 1—Sulfite pulp in filtered water	8,680
Vat 2—not in use	—
Vat 3—Sulfite pulp in filtered water	7,688
Vat 4—Sulfite pulp in filtered water	8,122
Vat 5—Sulfite pulp in filtered water	8,590

While drier temperatures reduce the vat counts to figures such as those below for finished board, it is possible to make considerable reductions in vat counts, resulting in more uniformly low count boards. We are working with Cherry River toward this objective. The following results which were also reported above, are the findings obtained from samples of board taken at the mill on November 17th. Results of tests on two samples are incomplete.

Samples	Colonies Per Gram	Samples	Colonies Per Gram
A Test 1	0	E Test 1	0
Test 2	73	Test 2	7
B Test 1	108	F Test 1	77
		Test 2	22
C Test 1	21	G	Not complete
Test 2	11		
D Test 1	32	H	Not complete
Test 2	43		

We trust that this preliminary report will be helpful to Dr. Arnold. It will be possible later to present a much more complete account.

With best regards, I am

Very truly yours
J. R. Sanborn
J. R. Sanborn

2505 II. Paraffin used for coating containers:

Sample #3 Detroit Testing Laboratory, May 8, 1936
analysis.

U. S. Pharmacopoeia X standard.

1415

THE DETROIT TESTING LABORATORY

Detroit, Michigan

Number

1704-A-7

Sample from

EX-Cell-O Aircraft & Tool Corporation

Date

5-8-36.

Sample of

3 Paraffine

Customer's Order

00-4235

Remarks

Submitted by Client

D. T. L. Order

80657

ANALYSIS:Sample #1Sample #2Sample #3

Odor Test (up to 225°F.) - Very faint Kerosene like odor. Very faint Kerosene like odor. No odor

Free Oil - - - - - None None None
(1,000 lbs. per sq.in.)

Rancidity - - - - - None None None

Moisture (Benzol-Xylol) - None None None

Acidity (U.S.P.) - - - - .143% .115% None
(in terms of oleic acid)

(Calculated as milligrams of potassium hydroxide per gm. of wax) - - - - .03 .02 None

REMARKS:

Sample #3 complies with the U. S. Pharmacopoeia X requirements for paraffine. Samples #1 and #2 are mixtures of various waxes. The A.S.T.M. test for oil (at 1,000 lbs. pressure) fails to yield any measurable quantity of oil from any of these samples.

THE DETROIT TESTING LABORATORY.

By

S. J. Holland

2507 III. Adhesives used in Pure-Pak.

Dowicide A preservative added to starch. See:

Krengel letter to Dr. Breed, October 23, 1937.

Arabol Mfg. Company letter to Ex-Cell-O Corporation October 21, 1937.

Sodium Benzoate used to preserve starch. See Detroit Testing Laboratory Report, July 8, 1937.

National Adhesives Corp., letter to Krengel November 17, 1936.

United States Department of Agriculture. Bulletin Food Inspection Decision 104, covering sodium benzoate.

2508

October 23, 1937

Dr. Robert S. Breed

New York State Agricultural Experiment Station
Geneva, New York

Dear Dr. Breed:

Immediately upon learning from you of the Dowicide A preservative, we communicated with the Arabol Manufacturing Company and asked them to substitute it for their present preservative. We also mailed them a copy of the proposed standards as written up in Geneva. A copy of their reply is attached hereto. We were very pleased to learn that Dowicide A is already being used in our adhesives that are manufactured by them.

We would very much like to have a letter from you, confirming the conversation in New York in which you stated that Dowicide A, in your opinion, is a satisfactory preservative.

Our other adhesive supplier, the National Adhesives Corporation, is using benzoic acid for a preservative. A copy of a description of benzoic acid, from Merck's Manual of Materia Medica, Volume V, is enclosed herewith. You will note that the average dose of this drug is 8 gr. The Detroit Testing Laboratory (recommended to us by the U. S. Bureau of Standards) analyzed this glue for us and reported a total of 5% preservative in it, or 210 gr. per pound of glue. As one pound of our adhesive will glue approximately 1500 containers, the benzoic acid per container will amount to 14/100 of a grain. This is spread over fifteen square inches of paper, and, under the very worst conditions, only a minute fraction of this surface would ever be exposed to milk. We believe this information will be of interest to you.

We are still very anxious to have Dr. Sanborn with us, and hope he will give us a few days notice so that either Mr. Bixby or myself can arrange to be here to show him about.

Very truly yours,

R. E. Krengel,
Pure-Pak Division.

REKrengel:L .

2509 F. I. D. 104

Issued March 3, 1909

UNITED STATES DEPARTMENT OF AGRICULTURE

Office of the Secretary

Board of Food and Drug Inspection

Food Inspection Decision 104

Amendment to Food Inspection Decisions No. 76 and No. 89, Relating to the Use in Foods of Benzoate of Soda

The Referee Board of Consulting Scientific Experts, composed of Dr. Ira Remsen, Dr. Russell H. Chittenden, Dr. John H. Long, Dr. Alonzo E. Taylor, and Dr. C. A. Herter, have reported upon the use of benzoate of soda in foods. The Board reports, as a result of three extensive and exhaustive investigations, that benzoate of soda mixed with food is not deleterious or poisonous and is not injurious to health. The summary of the report of the Referee Board is published herewith.

It having been determined that benzoate of soda mixed with food is not deleterious or poisonous and is not injurious to health, no objection will be raised under the Food and Drugs Act to the use in food of benzoate of soda, provided that each container or package of such food is plainly labeled to show the presence and amount of benzoate of soda.

Food Inspection Divisions 76 and 89 are amended accordingly.

George B. Cortelyou,
Secretary of the Treasury.

James Wilson,
Secretary of Agriculture.

Oscar S. Straus,
Secretary of Commerce and Labor.

The Influence of Sodium Benzoate on the Nutrition and Health of Man

Of the questions referred to this Board¹ the first to engage our attention have been the following:

(1) "Does a food to which there has been added benzoic acid, or any of its salts, contain any added poisonous or other added deleterious ingredient which may render the said food injurious to health? (a) In large quantities? (b) In small quantities?"

(2) "If benzoic acid or any of its salts be mixed or packed with a food, is the quality or strength of said food thereby reduced, lowered, or injuriously affected? (a) In large quantities? (b) In small quantities?"

To obtain satisfactory answers to these questions the Board has felt it necessary to carry through a careful investigation of the effect of benzoic acid or some one of its salts on the nutrition and general health of man. A thorough study of the literature giving the results of work done by various investigators on the physiological effects of benzoic acid and its salts, together with a study of reported clinical and medical observations; therapeutic usage, etc., have made it apparent that additional work was needed to render possible a conclusive answer to the above questions.

With a view to limiting the scope of the work, while at the same time meeting all practical requirements, our investigation, with the consent of the Secretary of Agriculture, has been confined to a study of the effect of the sodium salt of benzoic acid, viz, sodium benzoate.

To make this experimental inquiry as thorough as possible, and to minimize the personal equation, three independent investigations have been carried out—one at the medical school of Northwestern University, in Chicago, under the charge of Prof. John H. Long, of that institution; a second at the private laboratory of Prof. Christian A. Herter, of Columbia University, New York City; and the third at the Sheffield Scientific School of Yale University, in charge of Prof. Russell H. Chittenden.

The same general plan of procedure was followed in all three experiments. A certain number of healthy young

1. Dr. Alonzo E. Taylor, professor in the University of California, a member of this Board, owing to absence in Europe, has not been able to participate in the investigations embodied in this report.

men were selected as subjects, and during a period of 4 months these men, under definite conditions of diet, etc., with and without sodium benzoate, were subjected to thorough clinical and medical observation, while the daily food and the excretions were carefully analyzed and otherwise studied, and comparison made of the clinical, chemical, bacteriological, and other data collected. (For details, see the individual reports.) In this manner material has been brought together which makes possible conclusions regarding the effect of small and large doses of sodium benzoate upon the human system.

In fixing upon the amount of sodium benzoate that should constitute a "small dose", we have adopted 0.3 gram of the salt per day. Manufacturers of food products, which in their view require the use of a preservative, are in general content with 0.1 per cent of sodium benzoate. This would mean that in the eating of such a preserved food the consumer would need to take 300 grams per day, or nearly two-thirds of a pound of preserved food to ingest an amount of benzoate equal to our minimal daily dosage. Looked at from this point of view, our dosage of 0.3 gram per day seemed a fair amount for a "small dose", one that would clearly suffice to show any effect that small doses of the salt might exert, especially if continued for a considerable length of time. In all these four experiments this daily dosage was continued for a period of about 2 months. Under "large dose" was included quantities of sodium benzoate ranging from 0.6 gram to 4 grams per day. Such a daily dosage was continued for a period of 1 month. In a few instances somewhat larger doses were employed.

As the amount and character of the daily diet exert a well-known influence upon many of the metabolic or nutritive changes of the body, as well as upon the bacterial flora of the intestines, attention is called to the fact
2510 that the three investigations differed from each other in the amount of protein food consumed daily, thereby introducing a distinctive feature which tends to broaden the conditions under which the experiments were conducted.

The conclusions reached as a result of the individual investigations are given at length in the separate reports herewith presented, together with all of the data upon which these conclusions are based.

The fact should be emphasized that the results obtained

from the three separate investigations are in close agreement in all essential features.

The main general conclusions reached by the Referee Board are as follows:

First.—Sodium benzoate in small doses (under 0.5 gram per day) mixed with the food is without deleterious or poisonous action and is not injurious to health.

Second.—Sodium benzoate in large doses (up to 4 grams per day) mixed with the food has not been found to exert any deleterious effect on the general health, nor to act as a poison in the general acceptance of the term. In some directions there were slight modifications in certain physiological processes, the exact significance of which modifications is not known.

Third.—The admixture of sodium benzoate with food in small or large doses has not been found to injuriously affect or impair the quality or nutritive value of such food.

Ira Remsen,

Chairman,

Russell H. Chittenden,

John H. Long,

Christian A. Herter,

*Referee Board of Consulting
Scientific Experts.*

2511 (Letterhead of The Arabol Manufacturing Co.,
New York City)

October 21, 1937.

Ex-Cell-O Corporation,
Detroit, Michigan.

Gentlemen:

Replying to your letter of October 21st re Pure-Pak Adhesive.

We thank you for the report on Paper Milk Containers which we have found very interesting.

In regard to the preservative for adhesives, we have used Dowicide A for some time in the Pure-Pak Adhesive which we supply from Chicago. We carry this number on stock at all times, and we could supply you with any amount of this you want on short notice.

In regard to the Pure-Pak Adhesive shipped from our New York Factory, we believe they use Dowicide A as a

preservative. However, to be sure, we are writing them today to obtain this information and will relay it on to you as soon as we hear from them.

Thanking you for calling this matter to our attention, we remain

Very truly yours,
The Arabol Mfg. Co.,
Per R. Bielen.

2512 (Letterhead of National Adhesives Corporation,
Chicago, Ill.)

March 17, 1936.

Mr. Richard Krengel,
Ex-Cell-O Aircraft & Tool Co.,
Martin & Wilmette,
Detroit, Mich.

Dear Sir.

In accordance with the request of our Detroit representative, Mr. H. F. Tiffen, we are pleased to give you analysis of the Mikah Special Carton Adhesive, which we have been furnishing you:

Base is first quality pure food tapioca flour.

Contains 3% Sodium Nitrate.

Preservative is Benzoic Acid.

There are no other ingredients in this product, except, of course, water.

Trusting that this is the information you require, we are

Very respectfully yours,
National Adhesives Corporation,

M. E. Stern.

M. E. Stern.

MES:EC

2513

The Detroit Testing Laboratory
Detroit, Michigan

Number 3106-A-3

Date 7-8-37

Sample from Ex-Cell-O Aircraft & Tool Corporation

Sample of Paste

Customer's Order

Remarks Submitted by Client

D. T. L. Order 86267

Analysis.

Moisture 68.00%

Starch 29.69%

Sodium Nitrate 2.31%

Reaction faintly acid.

Preservative Sodium Benzoate—trace

The starch used is tapioca starch. The sodium nitrate as assayed is a little low. It is difficult, however, to obtain all of the sodium nitrate in a mixture of this kind as it can not be completely separated from the starch paste. It is probable, however, that at least 3% is present.

The Detroit Testing Laboratory,

By C. E. Greenlaw.

2514 IV. Compression tests made by the University of Detroit, November 26, 1937 shows the stability of the Pure-Pak container.

2515

University of Detroit
McNichols Road at Livernois
Detroit, Michigan

College of Engineering

Nov. 26, 1937.

The Excello Corporation,
1200 Oakman Blvd.,
Detroit, Michigan.

Dear Sirs:

I wish to report the following results of tests on milk containers supplied by your organization for compression tests on your order GA 16828, and our test order EM 106:

Detroit Sulphite containers:	Load at which container collapsed:
Quarts, on end, empty, Max. 200, Min. 150 Average.....	166 lbs.
Quarts, on end, filled, Max. 200, Min. 150 Average.....	166 lbs.
Quarts, on side, empty, top seam vertical.....	400 lbs.
Quarts, on side, empty, top seam horizontal.....	250 lbs.

Stevens and Thompson containers:

Quarts, on end, empty, Max. 150, Min. 130—Average.....	137
Quarts, on end, filled, Max. 150, Min. 140—Average.....	145
Pints, on end, empty Max. 160, Min. 130—Average.....	142
Pints, on end, filled	100
Half pints, on end, empty	100
Quarts, on side, empty, top seam vertical.....	375

The above tests were carried out on our 100,000 lb. Olsen Testing Machine, and are accurate with five percent. Where average values are given, five tests were made. Where averages are not given results were the same for all specimens tested, in each case not less than five.

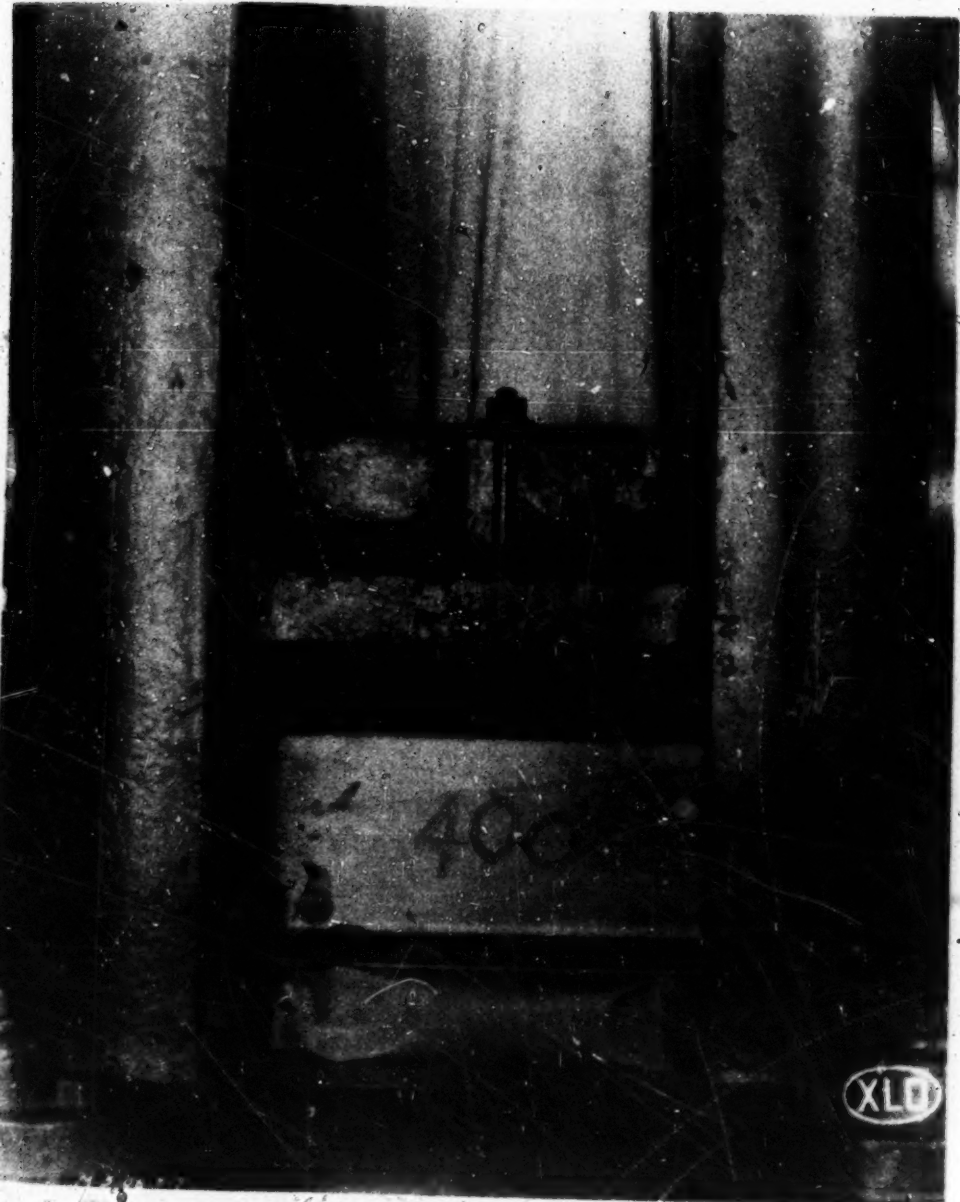
The Policy of the University Is: "No faculty member shall lend his name or prestige, or the name of the University, to any kind of advertising * * *."

If you desire to use this material in advertising, please consult the university authorities for permission to use the name of the university in your advertisements.

Yours very truly,

Herman E. Mayrose,
Herman E. Mayrose,
Prof. Eng. Mechanics.

1425





200#

2518 V. Durability of container filled with milk and kept at 100° F., report of Huffman, December 4, 1936.

2519 Durability Heat Tests—Pure-Pak Containers.

The object of this test was to determine if filled Pure-Pak containers when subjected to high temperatures for a given period would still be satisfactory receptacles for dairy products.

In dairy operation and distribution containers filled with dairy products are not permitted to reach a temperature over 50° F. Examination of filled containers held at this temperature in the dairy chill rooms and in the ice chests of the groceries proves that the Pure-Pak container remains in excellent condition for any practical period of time.

However, in order to leave no doubt as to the durability of the containers, quart packages filled with milk were placed in a specially constructed oven in which the temperature had been brought to and was controlled at 100° F.

At the end of 12 hours the containers were examined very closely for leaks or penetration of the milk. They were found to be in excellent condition, although the milk was by that time rancid.

Inspections were made at 12-hour intervals for the next 60 hours and at the end of this time the containers were still in very good condition; although they were somewhat deformed from their original square shape, no leaks had developed at any of the glue seals and the contents were still intact.

We feel that a test of this nature proves conclusively that for all practical purposes the Pure-Pak container has a wide margin of durability.

G. S. Hoffman,
Research Engineer Ex-Cell-O Corporation Pure-Pak Division.

Dec. 4, 1936.

April 2, 1957

Normal Curve
of Curve

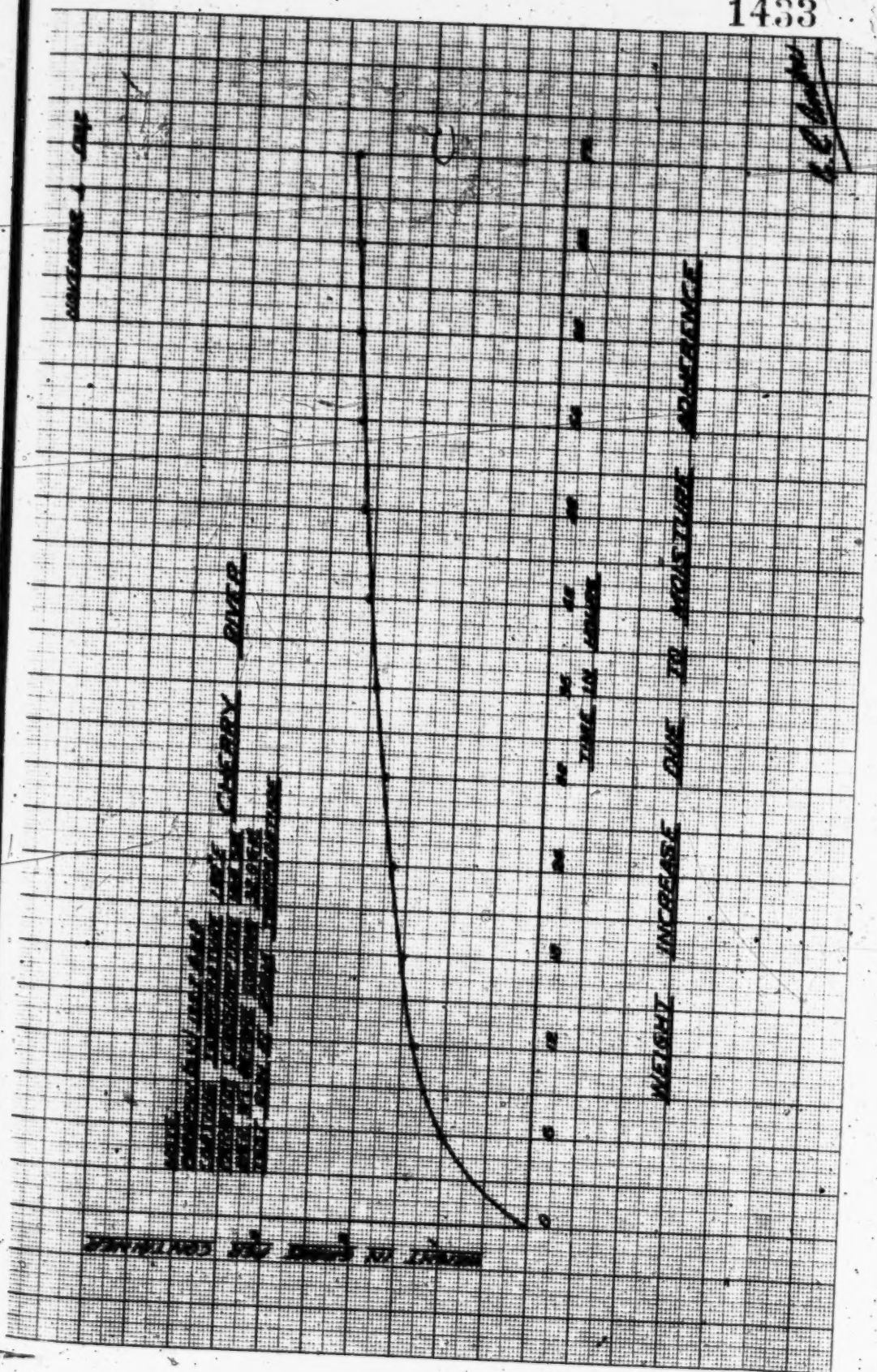
Weight in Grams

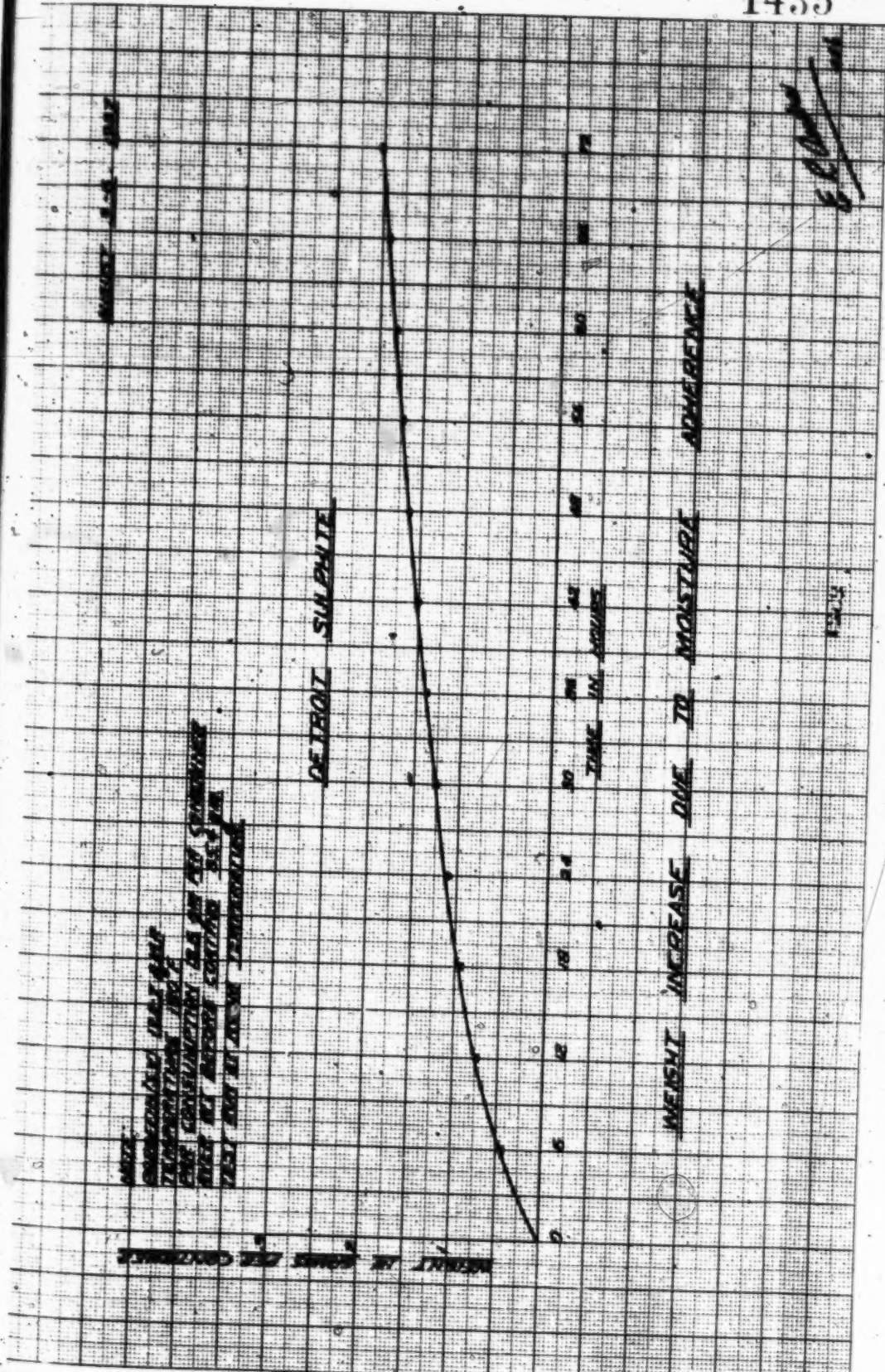
100° 150° 200°

TEMPERATURE

PARACETAMOL CONSUMPTION - GRAMS PER QUART CONTAINER

W. H. H. H.





NOVEMBER 11-12 1942

FIREBOARD BROOKLYN

WITH
 PROVISION (NEW) 25-127 AMP
 CABLE (NEW) 100-127 AMP
 PROVISION (NEW) 100-127 AMP
 PROVISION (NEW) 100-127 AMP
 PROVISION (NEW) 100-127 AMP

FIREBOARD BROOKLYN

100-127

0 10 20 30 40 50 60 70 80 90 100
 TIME IN HOURS

WEIGHT INCREASE DUE TO MOISTURE ABSORPTION

100-127

100-127

DECEMBER 28, 1938

TEMPERATURE

GLASS

CURE FOR

NOTE:
 1. GLASS AND CONTAINER
 2. STANDARD CONTAINER
 3. STANDARD CONTAINER
 4. GLASS CONTAINER IN
 STANDARD CONTAINER

TIME OF TEMPERATURE

TIME OF MEASURE

RATE OF TEMPERATURE RISE OF MILK IN GLASS & CURE FOR CONTAINER

10/11/38

2524

VI.

**Certain Sanitary Aspects of the Use of
Paper Milk Containers.**

**M. J. Prucha,
Department of Animal Husbandry,
University of Illinois,
Urbana.**

2525

**Certain Sanitary Aspects of the Use of
Paper Milk Containers.**

**M. J. Prucha,
Department of Animal Husbandry,
University of Illinois,
Urbana, Illinois.**

The bottling of fluid milk in paper containers is not a new idea. In a book by Kenelm Winslow entitled "Production and Handling of Clean Milk," published in 1909, the following statement appears on page 140. "The latest departure in the way of a milk bottle is the single service milk container of pulp wood invented and made by G. W. Maxwell of 1201 Falsom Street, San Francisco, California. It is now in actual use by dairymen in Los Angeles, California."

While the paper milk container was invented some thirty years ago, very little attention was paid to it by the fluid milk industry or by the milk sanitarians. It is only within the last few years that the paper milk container has forced its way into the fluid milk industry and to the attention of the milk sanitarians.

The paper milk container brings with it new problems, economic, practical, and sanitary.

As a result of demand for information concerning the paper milk container, a study on the subject was undertaken by the Dairy Department, University of Illinois. This paper is a progress report on some sanitary problems connected with the use of paper containers for fluid milk.

There are on the market, at present, at least five different types of paper milk containers. The study reported here was carried on specially with the Pure-Pak milk container. In the case of this container, the paper

(after it is made in the paper mill) is packed in large bundles and is shipped to the carton manufacturing company. Here the container is cut out, printed, and sealed along its long edge. It is packed and shipped to the dairy plant in a collapsed condition. In the milk plant the containers are fed into the Pure-Pake machine, made by the Ex-Cell-O Corporation of Detroit, Michigan. The container enters the machine at one end in its collapsed condition and comes out at the other end filled with milk and sealed. As it passes through the machine the container is first formed, then its bottom is sealed, then it is dipped in hot paraffine, passed through a cooling chamber, filled with milk, and finally it is sealed and dated.

What are some of the sanitary problems connected with the paper container? First, let us visit the paper mill. A paper mill requires a large volume of water so every paper mill is located by some abundant body of water—it may be lake, river or well. The paper from which the containers used in this study were made, came from the Detroit Sulphite Pulp and Paper Company. The pulp was made from red spruce trees by the Sulphite-2526 lime process. As the tree logs enter the paper mill they are washed and cleaned of all bark. As they pass from the washing machine to the cutter they are sorted, as only sound and free-from-bark-and-knots logs are acceptable. Next the logs enter the cutter where they are cut up in $\frac{1}{4}$ inch log chips. The chips of wood are sorted as they pass on their way to the cooker. The cooker is a large steel cylinder lined with brick. Here the wood chips are cooked for about 20 hours in a sulphur-lime solution under steam pressure at a temperature of 250° F. or higher.

Bacteriological examination of the wood pulp as it came out of the digesting retorts, or cylinders, showed it to be sterile. This is to be expected because no microorganism could survive such cooking as is given the wood.

The next step in the handling of the pulp is the washing to remove all traces of the sulphur-lime solution. For this purpose copious amounts of water are necessary. While the water was filtered and chlorinated, it was not free from bacteria. The equipment also tends to contaminate the pulp so that by the time it is washed it contains a bacterial count varying from a few hundred to several thousand per ml. of the water and pulp mixture.

The washed pulp is then conveyed to the bleaching vats. Here it is mixed with a hypochlorite to give an initial active chlorine content of 10,000 parts of chlorine to a million parts of pulp and water mixture. After several hours of exposure, the pulp again becomes sterile. Next the pulp is washed to rid it of chlorine solution. Just before it enters the paper mill proper, the size composed of partially saponified rosin and paper makers' alum is added. The size as a rule is not sterile. It ranged in bacterial count from 200,000 to about 12 million per ml. The amount of size added in proportion to the volume of pulp and water mixture is so small that numerically the bacterial count of the pulp is increased but little. Also the residue of chlorine in the pulp following the bleaching appears to exert some germicidal influence on the bacteria in the pulp at this stage. In one examination the water used for diluting the pulp had a bacterial count of 1500 per ml., the count of the size was 2,000,000 per ml., but the mixture of pulp, size and water had a count of only 400 bacteria per ml. By the time the pulp reached the paper mill rollers, its count was only 40 bacteria per ml.

In the paper mill proper the pulp is picked up from the water suspension by revolving cylinders covered with fine mesh wire cloth. The layers of the pulp adhering to the cylinder become the paper. In order to drive the moisture from the layers of the pulp, it is passed over large steel revolving cylinders which are heated by steam at a pressure of about 15 pounds. By the time the layer of pulp passes over about 35 hot cylinders it becomes dry, the water being evaporated or rather boiled off, during the process.

Bacteriological examination of the finished paper was made as follows: Strips of paper four inches square were cut off as the paper was leaving the last hot cylinder. The paper strips were placed in 100 ml. of sterile water and after vigorous shaking, plates containing one ml. of the water were poured. In most cases the plates developed no colonies. The paper so made is practically sterile when it comes off the hot rollers.

2527 The paper destined for milk containers was cut automatically as it came off the steam rollers, packed in large bundles and was shipped to the carton company, in this case to the Chicago Carton Co. Here the containers

were designed, cut, printed, and sealed along the long edge. They were packed in large cartons and were shipped to the milk plant, where they were paraffined and filled with milk.

At this point the unparaffined containers were examined for bacteria. In one test twenty-quart size containers were torn up into large pieces and were jammed by disinfected hands into a three-gallon milk can containing six liters of sterile water. After soaking for twenty minutes and vigorous shaking, one ml. of the water was plated in each petri dish. Several of the plates had no colonies and the rest had only one or two colonies. Calculations from such counts gave 2.3 bacteria per square inch of the surface of the paper.

Another examination of the containers was made to determine how many bacteria were enmeshed in the body of the paper. One quart size container was broken up in pieces and placed in a glass butter churn in 1500 ml. of sterile water. The churn was agitated until the paper was reduced to pulp, which took about forty minutes. Ten plates were made in each test, each plate contained one ml. of the pulp suspension. The results from one test in which five containers were examined are given in Table 1. Calculations based on the counts obtained show that in container 1 the paper had 50 bacteria per grain. In container 5 the paper had 18 bacteria per grain. The results indicate that the number of bacteria enmeshed in paper made by the above-described process was too small to be accurately estimated by the available bacteriological methods.

The next step in this study was the bacteriological examination of the containers after they were paraffined. The containers were passed through the Pure-Pak machine where they were paraffined at 170° F., and the empty containers were sealed. The containers were selected for this study in the following manner: Each day during six weeks, the first six containers that passed through the machine before bottling of the milk and also the last six after the milk was bottled were taken for the examination.

Table 1.—Number of Bacteria Enmeshed in the Paper From Which Milk Containers Were Made.

Container number	No. of colonies on each of ten plates. One container in 1500 ml. water. One ml. in each plate										No. of bacteria per gram of paper
	Plate number										
	1	2	3	4	5	6	7	8	9	10	
1	1	3	2	3	0	1	1	2	1	0	50
2	1	2	0	0	2	1	2	0	0	0	28
3	1	0	0	0	2	1	0	1	1	1	25
4	1	2	0	1	0	0	1	2	4	0	39
5	0	0	1	0	1	0	0	1	2	0	18

2528 The method used was that recommended by the Standard Methods. The containers were opened in the laboratory, 100 ml. of sterile water added. After a thorough shaking, two plates—using one ml. of the water in each—were poured. The trypton glucose agar was used for plating.

Of the 266 containers examined; 52 gave no colonies on the duplicate plates; 65 gave one colony on one of the duplicate plates and no colony on the other plate; 48 gave one colony on each plate; 20 had two colonies on each plate and only one container had more than 10 colonies on the duplicate plates.

Two conclusions can be drawn from these results—first, the number of bacteria in these containers was extremely small; second, this method (adding 100 ml. of sterile water to the container and, after shaking, making duplicate plates containing 1 ml. of the water) is not sufficiently accurate for determining bacteria in the containers.

In subsequent examinations of the containers, the following method was used—about 25 to 30 ml. of the nutrient agar was poured directly into the container. After sufficient agitation to bring the agar in contact with all the inside surface, the containers were incubated. In order to count the bacterial colonies, the containers were cut open, the slab of agar was placed on the counting glass and the colonies were counted.

Using this method for determining the number of bacteria in the empty containers, the following results were obtained: One hundred and ten containers paraffined at 170° F. and plated within four hours after paraffining, developed

110 colonies, which is less than one colony per container; ninety-three containers paraffined at 180° F. developed 49 colonies; ninety-eight containers paraffined at 185° F. developed 29 colonies; and ninety-five containers paraffined at 190° F. developed 53 colonies. A large percentage of the containers developed no colony and the largest number of colonies found in any container was only five.

The conclusion drawn from the results of these examinations is that when the pulp is prepared by the sulphite process and is bleached and made directly into paper, the paper made from it is practically sterile; and after the containers are paraffined, they are practically sterile. It did not seem to make much difference whether they were paraffined at 170° F., 180° F. or 190° F.

The examination of paraffined containers was extended to other makes of containers. So far 1055 of these have been examined. Forty-five percent of these developed no colonies. The largest count obtained was 309 colonies. A point of interest in this examination was the observation that some of the containers appeared to have paper defects manifesting themselves in the form of brownish patches in the paper under the paraffine coating. The containers with these defects were apt to have high bacterial counts as shown in Table 2. The twelve containers in this table are those giving the twelve highest counts of the 1055 examined. Also, it is to be noted that nine of them had defects and all of them harbored spore-producing bacteria.

2529. Table 2.—Twelve Containers Among 1055 Examined Giving the Highest Bacterial Counts.

Number	Total count	Spreader	Defects in paper
1	309	+	+
2	150	+	—
3	128	+	—
4	118	+	+
5	111	+	+
6	110	+	+
7	99	+	+
8	87	+	+
9	64	+	+
10	63	+	—
11	54	+	+
12	49	+	+

+ Bacteria survived. — Bacteria killed.

In general, the examination of over two thousand paraffined paper milk containers showed that about 50 per cent of them developed no colonies. The remaining 50 per cent of the containers developed only a small number of colonies. From the numerical standpoint, the number of bacteria in them was far below the standards suggested for milk bottles.

Another phase of the study dealt with the paraffining of the containers. The paraffining of the containers is done primarily for the purpose of making the paper impervious to the milk. Since paraffining must be done at relatively high temperatures, the process also involves a bactericidal action.

This phase of the study has been conducted both in the milk plant and in the laboratory. In the milk plant the Pure-Pak machine was used for paraffining the containers. The machine is operated so that the containers are exposed to the hot paraffine and the hot air in the paraffine well for thirty seconds. The temperature of the paraffine can be set as desired.

To test the bactericidal property of the paraffining process, the containers were impregnated with a bacterial suspension of a given organism. For this study a variety of *B. prodigiosus* was used. In the first part of the study the containers were inoculated by being dipped in a bacterial suspension which had a plate count of 200,000,000 to 300,000,000 bacteria per ml.

In dipping the containers, they absorbed on the average about seven ml. of the suspension; thus there was deposited on each container approximately one and one half billion of the bacteria.

As soon as the containers were dry they were paraffined and sealed by the machine. To test for the presence of *B. prodigiosus* about 25 ml. of nutrient agar were poured in each container and after a thorough shaking, the containers with the agar were incubated at room temperature for at least four days.

2530 As already stated, the speed of the machine is adjusted so that each container was exposed to the hot air in the paraffine compartment and to the paraffine for 30 seconds. The two factors that could be varied were the temperature of the paraffine and the number of bacteria put on the surfaces of the container.

The following results were obtained when the containers were inoculated by dipping them in a bacterial suspension

containing large numbers of bacteria, say 200,000,000 to 400,000,000 per ml. Most of the containers after they were paraffined were free from bacteria, but there were a few—one to ten per cent—in which the bacteria survived. This was true when the temperatures were 170° F., 180° F., and even at 190° F. Once in a while a container would show the presence of bacteria.

When the bacterial suspension was such that there would be less than 2,000,000 bacteria per ml., the containers dipped in it and paraffined did not develop any *B. prodigiosus* colonies.

The method of inoculating the containers by dipping them in bacterial suspension was discontinued. Instead, the containers were inoculated by rubbing the inside surface of the containers with a hand dipped in a heavy bacterial suspension. This method deposited about 5,000 bacteria in each container. In one of the runs, using this method of inoculation, 300 containers were inoculated using a suspension of 250,000,000 bacteria. Another lot of 300 containers was inoculated using a suspension of 2,000,000 bacteria. One hundred of the heavily inoculated and one hundred of the lightly inoculated containers were paraffined at the following temperatures: 160° F., 170° F., and 180° F.

The 300 containers inoculated with the suspension containing only 2,000,000 bacteria per ml. and paraffined at 160° F., 170° F., and 180° F. were all negative.

When the containers were inoculated by rubbing with hands dipped in suspension that contained 250,000,000 bacteria per ml. there were nine positive out of 100 paraffined at 170° F., one was positive out of the 100 paraffined at 180° F., and two were positive out of the 100 paraffined at 190° F.

Still another method of inoculating the containers was tried. In regular dairy operations, the dairy plant operator, using his hands, takes the containers from the shipping carton and places them in a rack on the machine. This is the only place where the containers are handled by hand. To inoculate the containers the operator dipped his hands in a bacterial suspension before handling the containers. The bacterial suspension had about 300,000,000 bacteria per ml. The exact number of bacteria deposited on each container by such handling was not determined, but the containers were examined for the presence of bacteria.

In one test, six hundred containers were inoculated in this manner and were paraffined. Two hundred were

treated at each of the following temperatures: 170° F., 180° F., and 190° F. The examination showed all the containers paraffined at 170° and at 180° F. to be free from *B. prodigiosus*. Of the two hundred paraffined at 190° F., 199 were negative and one positive.

2531 In these tests in which inoculated containers were paraffined by the machine, a number of uninoculated containers were always passed through the machine before and after the inoculating containers. In no case were the uninoculated containers positive, indicating that the hot paraffine and the machine parts with which the uninoculated containers came in contact were free from *B. prodigiosus*.

The study of paraffining the paper was also carried on in the laboratory. Here small strips of paper, $\frac{1}{4}$ by $2\frac{1}{2}$ inches, were used. The strips of paper were dipped in a bacterial suspension and dried. They were then paraffined at different temperatures for varying lengths of time.

In Table 3 are presented results from one of the runs. Six strips of paper were treated for each combination of time and temperature. *B. prodigiosus* suspension of 200,000,000 bacteria per ml. was used in this test. The bacteria were killed in twenty seconds at 212° F.; in thirty seconds at 200° F. and 190° F.; in forty-five seconds at 180° F. and at 170° F. They were not killed in one minute at 160° F.

Table 3.—Killing of *B. Prodigiosus* by Paraffining One-Half Inch by Two and One-Half Inch Strips of Paper Inoculated with 1,000,000 Bacteria.

Temperature of paraffine	Seconds exposed				
	10	20	30	45	60
160° F.	+++	+++	+++	++	+++
170° F.	+++	+++	++	—	—
180° F.	++	+++	—	—	—
190° F.	++	—	—	—	—
200° F.	+	—	—	—	—
212° F.	++	—	—	—	—

+ Bacteria survived.
— Bacteria killed.

In Table 4 are given results obtained in one test in which the strips of paper inoculated with coliform organism were dipped in sterile hot water instead of in paraffine. It will be noticed that the hot water was very much more effective than paraffine in killing bacteria. This organism had approximately the same thermal death point as *B. prodigiosus*.

As the paper milk bottle travels from tree logs to a container filled with milk, there are several points in the journey at which sanitary control should be practiced. The goal in paper mills should be to produce sterile or nearly sterile paper. In the first place, the water used in the paper mill should be so treated that it is safe to drink. Such water should be low in bacterial counts, purified and chlorinated. When sulphite process pulp is used and is bleached, and when the water is as stated above, the paper will be practically free from bacteria.

2532 Table 4.—Killing *B. Coli* on Paper by Dipping Strips of Inoculated Paper in Hot Water. Each Strip Inoculated with 5,000,000 Bacteria.

Temperature of water	Seconds exposed				
	10	20	30	45	60
130° F.	+++ +++	+++ +++	+++ +++	+++ +++	+++ +++
140° F.	+++ +++	+++ +++	+++ +++	+++ ---	+++ ---
145° F.	+++ +++	+++ +++	+++ ---	---	---
150° F.	---	---	---	---	---

+ Bacteria survived.

— Bacteria killed.

The next sanitary necessity is to prevent any contamination of the paper in packing, transporting, cutting into milk container shapes, transporting, storing, and handling at the milk plant.

To put in practice measures to protect the paper against contaminations, certain specific requirements will be necessary. Packing the material in a certain way, medical examination of those that must handle the paper and proper facility for storing the paper so that it will not be contaminated by dust, insects, vermin or contaminated human hands must be adopted.

Since this study was started a tentative sanitary requirement for paper milk containers has been proposed by a conference held in New York City in July, 1937. Although these proposed standards are good, they probably should be more exacting.

When the paper is so made that it is practically sterile, when it and the containers made from it are handled, packed, transported, and stored in such a manner that they will not become contaminated, and when the containers are paraffined at 185° F. for 30 seconds or longer, the paper containers will be fully as safe as any container can be made.

2533 Increasing the Efficiency of Milk Distribution

R. W. Bartlett

Department of Agricultural Economics
University of Illinois
Urbana, Illinois

For the United States as a whole two major conflicting forces in the milk business are now in operation: (1) a marked upward trend in milk distribution costs and an increased spread between the retail prices of market and evaporated milk, and (2) an increasing proportion of milk sold in stores and an increasing use of paper bottles. While canned milk competition is in the picture, the principal struggle is between retail delivery and store distribution of milk, with stores slowly but surely taking a part of the business of the older, established system of milk distribution.

The situation varies much in different sections of the United States. Starting in New York City, more than 20 years ago, store distribution of milk has shifted from "dipped milk" sales which were ruled out in June, 1933, to store sales of milk in paper containers. The City Department of Health reports that at present approximately 2,400,000 individual packages containing quarts or smaller quantities of milk or cream, are used daily in New York City, about 600,000 of which are single-service containers. During the past year, the price of Grade B milk on retail routes has been 13 cents a quart as compared with 9 or 10 cents a quart, the usual store price for milk. Including store sales in glass bottles, about one third of the milk

consumed by New York customers is purchased through stores.

The First National Stores have been selling milk through stores in Boston since 1921. Starting with a price differential below the retail delivered price of 4 or 4½ cents per quart, this has gradually been reduced to a differential of 1 cent a quart, fixed by the Massachusetts Milk Control Board.

With the beginning of the depression (1929-1934), competitive forces in California began to operate with such force that they utterly disorganized the retail distribution of milk in Los Angeles, San Francisco, Fresno, and several other Californian cities. The proportion of store sales in these cities increased at a remarkable rate as a result of low consumer incomes and low store prices. For distributors this trend has meant that the higher profits were to be found in wholesale distribution. Instead of being a depression situation of temporary nature, this change is likely to be permanent. As evidence of this trend, the Borden Company recently turned over all of its retail business in California to another company, and is now doing a 100 per cent wholesale business in that state. This policy, adopted by one of the most progressive concerns in the milk business, is an indication of the far-reaching significance of the present trend in the milk industry.

2534 Well established in New York and Boston on the eastern coast, and now deeply rooted in the western coast, the movement toward an increasing proportion of store sales of milk is gradually extending to the in-between cities. Detroit is now a battle-ground of conflicting forces with store sales of milk gaining substantially. Dairy stores, started in the twenties by the Isaly Dairy Company of Youngstown, Ohio, are now numerous in Pittsburgh, Pennsylvania. Recently the Borden Company opened up a chain of dairy stores in Columbus, Ohio. Since 1933, the Farmers' Equity Union have opened 21 dairy stores in and around Lima, Ohio.

What about the paper bottle? Starting in New York City in 1930, the paper bottle is now used in the wholesale distribution of milk in Philadelphia, Pittsburgh, Los Angeles, Cleveland, Detroit, and Baltimore (Table 1), as well as in many smaller cities. At present, its use in Los Angeles is limited principally to the hilly districts, and for sea-going vessels.

Table 1.—The Use of the Paper Bottle in the Distribution of Milk in Cities with More Than 500,000 Population, October, 1937^a.

City	Date first used
New York	1930
Philadelphia	1933
Pittsburgh	1933
Los Angeles	1933 (est.)
Cleveland	1935
Detroit	1937
Baltimore	1937

"What does increasing store distribution, increasing use of paper bottles, as well as increased competition of evaporated milk, mean to my business?" the forward-looking milk dealer may well ask. While no attempt will be made in this paper to answer completely this question, some facts will be reviewed and analyzed which, it is hoped, may be helpful in suggesting an answer.

Increasing Spread Between Retail Delivered Prices of Market Milk and Retail Store Prices of Evaporated Milk

Eighteen years ago, a housewife paid 1 cent more for a quart of milk delivered to her doorstep than for a can of evaporated milk purchased at the store¹ while in October, 1937, she paid 5.1 cents more than the average 2535 price of market milk in 51 cities was 12.7 cents per quart, whereas a 14½-ounce can of evaporated milk cost 7.6 cents in these same cities.¹ The trend in the price spread between these two commodities from 1919 to 1937 is shown in Figure 1. One should particularly note the upward movement since 1933. In view of this increasing spread, it is not difficult to understand the present healthy condition of the evaporated milk industry. A question which naturally arises is: What caused this wide increase in spread?

^a Cities in this population grouping which are not using paper bottles in the distribution of milk are: Boston (not used for milk, but used for cream), Buffalo, Chicago, Milwaukee, Minneapolis-St. Paul, St. Louis, and San Francisco.

1. In 1919, evaporated milk was distributed in 16-ounce cans. In this study prices were converted from the 16-ounce can to the 14½-ounce can by multiplying by .90625 for the period 1919 to December, 1931, when the 14½-ounce can was put into general use by the evaporated milk industry.

1. As reported by the U. S. Bureau of Labor Statistics.

Major Decrease in Costs of Processing and Distributing Evaporated Milk

Studies indicate that the major cause for this increase has been the marked decrease in costs of processing and distributing evaporated milk without a corresponding decrease in costs for distributing market milk.

In 1937, canned milk distributors received 4.6 cents per 14-ounce can for processing and distributing evaporated milk, or only slightly less than half of the 8.7 cents per can received in 1921 (Figure 1). Loaded with stocks following the loss of their European outlet in 1920, canned milk manufacturers in 1922 lowered their handling margin 2 cents a can from the margin prevailing in 1921. Once started, they have continued their program of lowering costs, so that present margins have been reduced another 2 cents since 1922, and the results of this policy have increased sales. In contrast to the 1920-21 slump, when they were forced to cease operations, during the recent depression (1929-1933) condenseries have been kept running continuously and have emerged in a much stronger financial position than the market milk business.

Handling Margins for Market Milk Remain High

Since processing and retailing milk to consumers include a high proportion of inflexible costs, leaders in this industry have been unable to compete with the canned milk industry in reducing costs. Using the difference between the retail price per delivered quart and the average receiving station price paid producers in eight cities² as a rough measure of the trend of distribution costs in the larger cities, one finds that the present gross handling margin in these cities is fully as high as that in 1921 and nearly as high as in 1930, the peak year (Figure 1). It declined somewhat in 1932 and 1933, but during the past four years has been rising rapidly.

Market Milk Prices to Producers Slightly Higher Than Condensery Prices

Market milk prices paid to producers average somewhat higher than prices at the condensery. Reduced to a quart basis, however, this difference is relatively small. From 1919 to 1937, market milk prices paid producers at receiv-

ing stations tributary to eight large markets² have ranged from 0.6 to 1.3 cents per quart higher than the average price paid for condensery milk in the United States (Figure 1).

A review of the changes in these premiums indicates that they have been of only minor importance in increasing the margin between retail prices of market milk and canned milk.

2. The cities included are: New York, Boston, Detroit, Milwaukee, Chicago, Philadelphia, St. Louis, and Minneapolis-St. Paul.

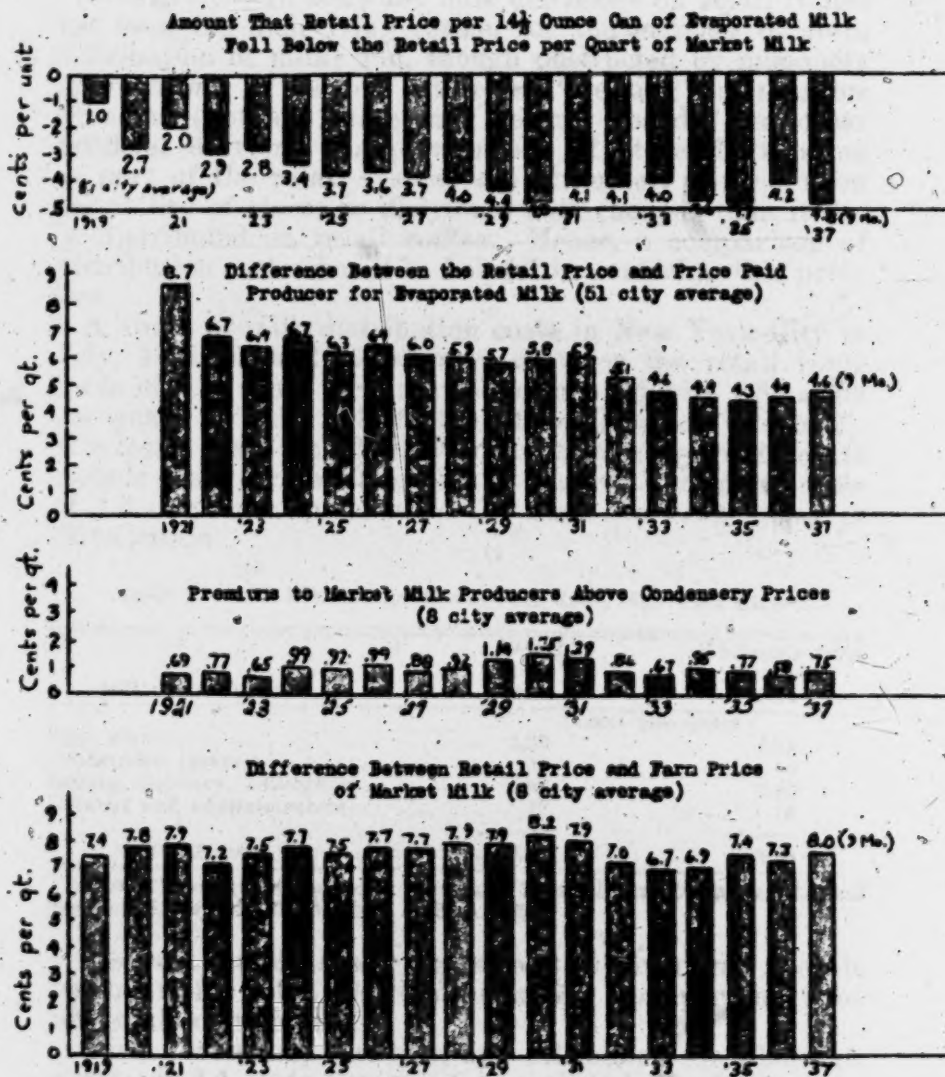


Fig. 1.- Some Measures of Differences in Prices, 1919-1937

2537 Retail and Wholesale Distribution Costs

Relatively high costs for milk deliveries on retail routes has been the underlying reason for the increase of store distribution of milk; and, though obstructed by monopoly combinations of various interests, "freezing" of margins by some (not all) state milk control boards, and other artificial barriers, the permanency of store distribution as part of the retail system will ultimately depend upon the ability of stores to distribute milk cheaper than it can be distributed on retail routes. Hence, a comparison of distribution costs should be helpful in analyzing this problem.

A study of milk distribution costs in New York City in July, 1935, showed an average cost for the retail route trade of 6.35 cents per quart, as compared with 3.85 cents per quart for milk sold to the wholesale trade (Table 2). Wholesale costs include delivery costs to stores but do not include costs for handling milk at stores. City plant costs of 1.2 cents per quart were the same for both types of distribution.

Table 2.—Milk Distribution Costs, July, 1935, New York City.*

Milk dealers costs	Retail route trade	Wholesale route trade to stores
	(cents per quart)	
City plant.....	1.20	1.20
Containers (glass).....	.20	.10
Selling, delivery, collections.....	4.80	2.40
General and administrative.....	.15	.15
Total cost.....	6.35	3.85

* From "The Spread Between Farm and Retail Prices for Milk," Leland Spencer, American Cooperation, 1935, p. 498.

The cost for containers (glass bottles) averaged .2 cents per quart for retail distribution, and .1 cent per quart for wholesale distribution.

Costs for selling, delivery, and collections for wholesale routes of 2.4 cents per quart were just half of 4.8 cents, the unit cost for these same operations on the retail routes. General and administration costs of .15 cent per quart were the same for both types of delivery.

Costs for store distribution were not computed in this study. Although some people question their ability to

handle it on such a small margin, many stores in New York City are handling milk for 1 cent a quart at the present time.

Comparison of Milk Distribution Costs in Glass Bottles and in Paper Bottles

The use of the paper bottle in the store distribution of milk in New York City has expanded with amazing rapidity, particularly during the past two years. In marked contrast, the glass bottle is still the usual type of container for store distribution of milk in Boston. A study of wholesale distribution costs in these cities may help to explain the situation.

2538 As stated, milk distribution costs to the wholesale trade in New York City for July, 1935, averaged 3.85 cents per quart. These costs were based upon distribution of milk in glass containers.

Costs for distributing milk in paper bottles by the Dairy Sealed, Inc. of New York City, a subsidiary of the Borden Company, were filed at a hearing before the New York State Milk Control Board in May, 1936. Total costs of wholesale distribution for January to March, 1936, as shown by this record, averaged 3.24 cents per quart. This was about three-fifths of a cent a quart less than costs of distributing milk in glass bottles, as shown in the New York cost study made six months earlier (Table 3).

Table 3.—Milk Distribution Costs on Wholesale Routes in Glass Bottles and Paper Bottles, New York City.

Milk dealers costs	Wholesale routes	
	Glass bottles July, 1935 ^a	Paper bottles ^b Jan.-Mar., 1936
	(cents per quart)	
City plant	1.20	.614
Containers10	1.347
Selling, delivery, collections	2.40	1.025
General and administrative15	.264 ^c
Total cost	3.85	3.240

^a Same source as Table 1.

^b Data as presented at a hearing before the New York State Milk Control Board, May, 1936, by the Dairy Sealed, Inc., a subsidiary of the Borden Company.

^c This includes the billing and collection expense amounting to .05 cents per quart.

Breaking down these figures, one observes that city plant costs for processing and bottling milk in paper bottles were about one half those for performing the same operations with glass bottles. Use of the single-service container eliminates all costs of labor, space, equipment, and power, necessary for handling, washing, and storing glass bottles.

Selling, delivery, and collection costs for paper bottles averaged about 1 cent per quart, as compared with 2.4 cents per quart for the same service with glass bottles. Probably the greatest saving in delivering paper bottles has resulted from speeding up the servicing of stores. With no returned bottles, and collections delegated to an afternoon service man, a route delivery-man now commonly services an average of ten stores an hour. The use of paper containers also reduces to one third the space required for glass bottles, and reduces the weight from an average of 61 pounds to 28 pounds per case of 12 quarts of milk. In fact, with the use of dry ice in insulated trucks, it is now practical to service stores within a radius of at least 75 miles from the main plant. This eliminates high sub-station costs for labor, space, and equipment, as well as costs for icing milk at this station.

2539 The limiting factor in the use of paper bottles is the cost of the container. These studies show a cost of 1.347 cents per quart for the single-service container as compared with .1 cent per quart for the glass bottle. Undoubtedly the cost of this container has been reduced during the past two years as the number used has increased.

The fact that the distribution costs for store deliveries in New York were found to be cheaper with paper bottles than with glass bottles does not necessarily mean that this same condition holds true in other cities. In comparing wholesale costs of distribution in Boston with those for the Dairy Sealed, Inc., of New York, one finds that the New York costs of 3.24 cents per quart exceeded those at Boston, where wholesale distribution of milk in glass bottles averaged 3.09 cents per quart (Table 4).¹

1. The accounting system used in computing distribution costs in New York City differed from that used in computing these same costs in Boston. While this might affect the distribution of costs between different items, it should not seriously affect total costs per unit.

Table 4.—Milk Distribution Costs on Wholesale Routes in Glass Bottles, Boston, and in Paper Bottles, New York.

Milk dealers costs	Boston ^a	New York ^b
	Glass bottles 1935	Paper bottles July, 1935.
	(cents per quart)	
City plant85	.612
Containers12	1.347
Selling, delivery, collections.....	2.04	1.025
General and administrative.....	.08	.254
Total wholesale cost.....	3.09	3.24

^a From Summary Report on Cost of Distributing Milk in the Boston Market, October, 1936 (pp. 21 and 22). Prepared for the Massachusetts Milk Control Board by the Charles F. Rittenhouse and Company, Certified Public Accountants.

^b Same source as Table 1.

During the past two years costs of retail deliveries have increased, while apparently store costs of retail distribution in paper containers have declined. One dealer in New York City is reported to have reduced wholesale distribution costs to 2.8 cents per quart. This tendency toward reduction in wholesale costs of distribution when retail delivery costs are rising, is a powerful force for expanding the store distribution of milk.

Summary and Conclusions.

A review and analysis of the facts shown in this paper indicate that:

1. The evaporated milk industry has made remarkable strides during the past 16 years in lowering costs for distributing their product.

2540 2. The market milk industry in the larger cities apparently has failed to keep pace in its retail operations with the canned milk industry in lowering distribution costs. Today retail delivery costs fully as much as it did 15 to 20 years ago.

3. The proportion of store distribution of milk has been increasing in recent years as a result, at least in part, of distribution costs lower than those for retail deliveries. With this increase in store business, it is important to note that it has not displaced retail deliveries, nor is there any indication that either is about to crowd out the other. These two types of enterprise are in keen competition. At the

present time, each is more efficient because of the other's competition. And because of this competition consumers are getting the benefit of increased efficiency.

4. The introduction of paper bottles in the store distribution of milk is economically sound to the extent that it lowers distribution costs and is accepted by consumers. If the use of paper bottles continues to bring about lower costs for the store distribution of milk coincident with rising costs of retail deliveries, one may expect the use of the single-service container to continue to expand.

5. In view of the adequate plant capacity of milk distributors now in business, it is to be hoped that further shifts from retail deliveries to stores will be brought about largely by distributors now in the business rather than through the duplication of facilities by new enterprisers.

2541 The Practicability of the Paper Milk Container.

P. H. Tracy
Department of Dairy Husbandry
University of Illinois
Urbana, Illinois

For many years glass bottles have been the accepted container for milk. Although the life of a glass bottle is limited, its adaptability for washing and sterilizing, and its transparency (which increases the sales appeal of the contents) have enabled it to easily maintain a complete monopoly in the milk industry for the past 20-30 years.

With the recent development of store selling of milk there has come a demand for an inexpensive single service type of milk container. The store shopper naturally prefers to buy milk in a package that does not have to be returned; and one which can be conveniently and safely carried to the home. To meet this need several paper milk containers have been developed.

According to Winslow (The Production and Handling of Clean Milk, pp. 140-142; 1907-1909), the paper milk container was invented by G. W. Maxwell of San Francisco, and first used by dairymen in Los Angeles. These early containers resembled an ordinary drinking glass and were sterilized by dipping into paraffin at 220°F. A special machine was used for filling and capping. According to Winslow the advantages of the paper containers are freedom from germs, no breakage or loss of bottles, no bottle wash-

ing and sterilizing necessary, and reduced weight in transportation.

The first extensive commercial use of paper containers was probably in New York City in 1929. Since this time, however, the single service container has been introduced into several of the larger cities all over the country. There are in general three types of containers used, namely, those prefabricated and requiring a special filling machine, those prefabricated but not requiring a special machine for filling, it being possible to use the regular glass bottle filling machine, and, finally, those that are formed and paraffined in the dairy just before filling, requiring of course a special machine for the purpose.

While it is our intention to study all three types of containers from the standpoint of their sanitary qualities, adaptability for dairy plant operation, and acceptance by the consumer, the present report will deal, only with that type of container formed and paraffined immediately before filling. The container used for this purpose was the Pure-Pak. The machine necessary for preparing and filling the container was supplied by the Ex-Cell-O Corporation, Detroit, Michigan.

The machine, without the platform, covers a floor space of approximately 2½ feet by 24 feet, and weighs 5 tons. The printed containers are fed into one end of the machine.

where they are first formed and the bottoms glued down, after which they pass into the hot paraffin bath

where they remain for 18 seconds. They then drain for 12 seconds longer before passing out of the hot paraffin compartment. The temperature of the paraffin and the

air above may be varied but the minimum recommended by the manufacturers of the machine is 170°F. The container next passes through a cooling chamber where a blast

of 40°F. air solidifies the paraffin and cools the container. The container is then filled with milk and any excess foam

is removed by a blast of dry steam. The top is folded in, heated, and pressed along the edges so as to seal the closure.

A hot (400°F.) wire staple is inserted to secure the seal, and finally the day of the week is stamped on. The containers of milk are then packed twelve to a case. The paper

case of twelve bottles weighs approximately 28 pounds.

The amount of paraffin necessary for coating the containers varies from about 12 to 15 grams. As the temperature of dipping is raised the amount of paraffin retained

decreases. In our studies, two grades of paraffin were used—the high (135°-137°F.) and low (125°-127°F.) melting point paraffins. In actual tests the temperature at which the paraffin melted sufficiently to be detectable upon absorbent paper was about five degrees below the rated melting points, so that danger from paraffin melting and running into the milk would not be evident until the container temperature reached about 120°F. in the case of the low-melting point paraffin and 130°F. in the case of the high-melting point paraffin.

Since there is some bending of the paraffined paper during handling and opening, an attempt was made to determine to what extent the paraffin chipped off into the milk. The average weight of paraffin found in six bottles filled with water and hauled on a milk delivery truck for eight hours was .001 grams.

As previously stated, the foam that results from filling is removed by a small jet of steam. Foaming is more of a problem in the case of homogenized milk than regular milk. The amount of foam formed is directly related to the temperature of the milk, being greater at the lower temperature. The amount of foam dilution was found to average 0.3073 grams per quart of milk.

The amount of moisture absorbed by the walls of the quart containers was found to vary from 0.5 to 2.5 grams. Somewhat more moisture is retained by the heavy (.019 inch) paper than by the light (.016 inch) paper. The most important factors, however, were the time and temperature of storing the containers, the greatest retention taking place at the higher storage temperature and at the longer storage period.

Bulging of the side walls is one of the minor problems connected with the use of paper milk containers. A certain rigidity of side walls is desirable from the standpoint of ease of handling and prevention of leaking. The greatest bulging naturally occurs at the higher storage temperatures. Neither the weight of the paper used nor the type of dairy product placed in the container is a significant factor. Slightly greater bulging occurred when the higher melting point paraffin was used. This was particularly true when the containers were dipped at low temperatures (160° and 170°F.).

There is but slight difference in the rate of temperature change of milk in glass and paper containers, though

2543 the milk in paper warms slightly slower. When the paper and glass containers are packed in their respective cases the rise in temperature is much slower in the case of the milk in paper containers. In one experiment the milk in glass bottles in wooden cases stored at room temperature was slightly warmer after three hours than was that in paper containers stored in paper cartons after seven hours.

The detriment effect of sunlight upon the flavor of milk in glass bottles has been known for some time. While milk stored in paper containers will acquire the "sunshine flavor," the effect of the sun is not nearly so serious as it is in the case of the milk in glass bottles.

Consumer tests based upon 221 completed questionnaires returned by the milk customers on the University milk route have shown a preference for the paper in most respects. From a sanitary point of view the majority of users preferred the paper. Few thought there was any difference in the flavor of the milk, its keeping quality, and its tendency to freeze or the rate of temperature rise. It was almost a unanimous opinion that the paper containers took up less space in the refrigerator and were more convenient for picnics, etc. The glass bottle was picked for greater ease of pouring from and for ease of separating the cream from the skim milk. A slight majority preferred the paper container to the glass container when the milk sold for the same price, but at one cent less, 75 per cent indicated a preference for the paper container. Whether the milk was purchased from a store or was delivered made no material difference as far as preference was concerned.

Some of the favorable individual comments were as follows:

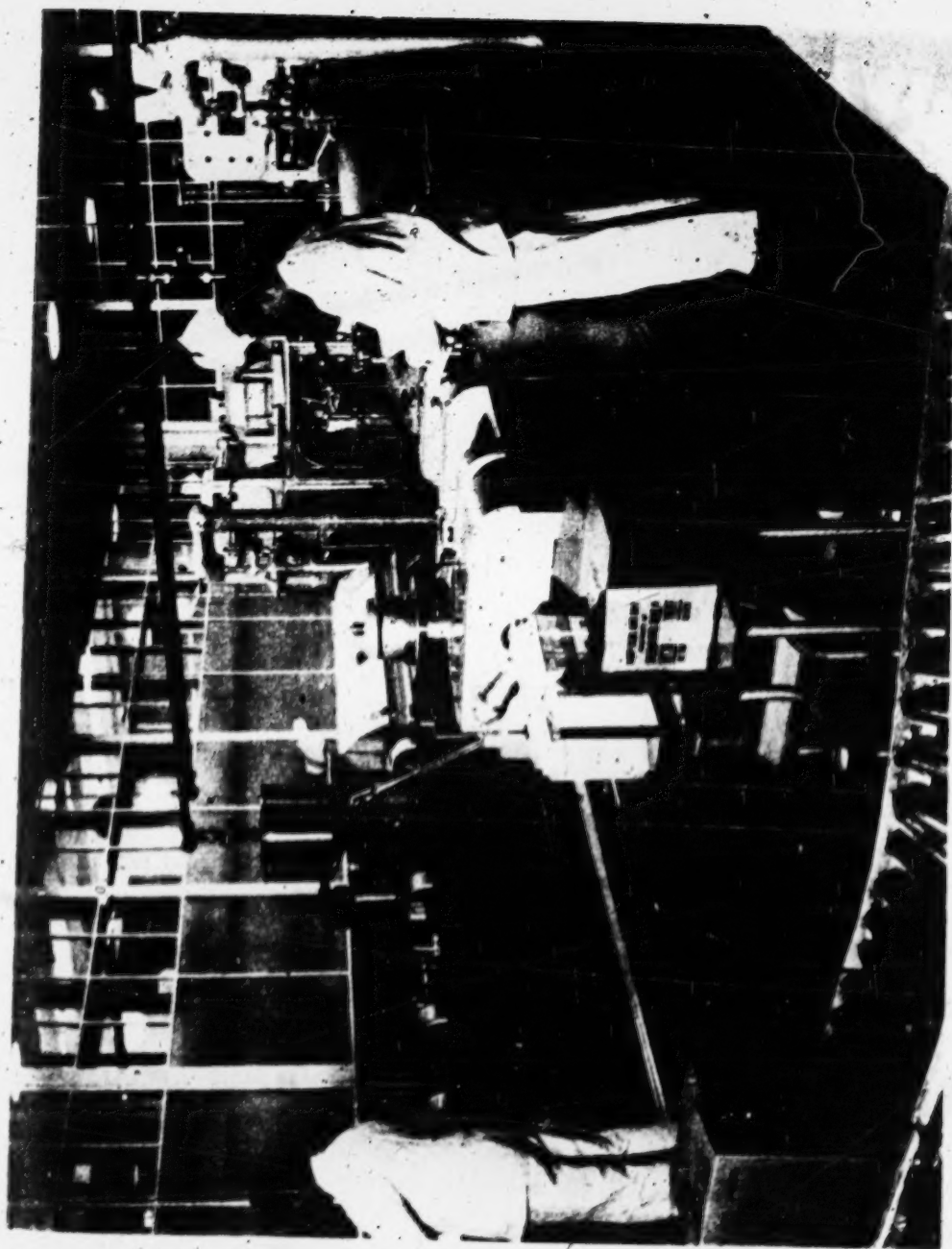
1. Easier to handle by delivery man.....	2
2. No washing of bottles.....	51
3. No breaking or chipping of bottles.....	14
4. No bottle to return.....	32
5. Moisture does not condense as much as on glass...	1
6. Empty containers make garbage containers.....	4
7. Excellent for picnics, pack easily and easily disposed of.....	4
8. Good containers for other foods in ice box.....	7
9. Containers easy to dispose of.....	8
10. Good for kindling.....	6
11. More easily handled.....	12

- | | | |
|-----|--|---|
| 12. | Easier to close after being opened..... | 3 |
| 13. | Less weight on refrigerator shelf..... | 2 |
| 14. | Bottles easy to open..... | 4 |
| 15. | Eliminates noise of bottles and cases early in the morning | 3 |

2544

VIII.

Side View of Pure-Pak Instillation
Complete and in Operation.



2546

PLAINTIFF'S EXHIBIT 5.

(Letterhead of City of Philadelphia, Bureau of Health.)

November 27, 1936

Silver Seal Dairy Products Company
612 South 24th Street
Philadelphia, Pa.
Attention—Mr. Edward Fuller, President

Dear Mr. Fuller:

In reply to your query of November 23, regarding the use of paper milk bottles in the City of Philadelphia, we have found that they have complied with all the sanitary laws of this City, and from an inspection which I, personally, made at your plant, I believe they are most decidedly a progressive step in the sanitary handling of milk.

It might be interesting to you to know that Silver Seal milk in paper packages is used exclusively in my home. Unfortunately, however, I cannot permit you to use this statement for advertising purposes, but you are privileged to show it to any other health authority.

Very truly yours

Herbert M. Packer

Herbert M. Packer

Chief of Division

HMP/ER

2547

PLAINTIFF'S EXHIBIT 6.

(Letterhead of Department of Health, Jersey City, N. J.)

November 28, 1936.

Mr. Edward R. Fuller, President,
Silver Seal Dairy Products Co.,
612 South 24th St.,
Philadelphia, Pa.

Dear Mr. Fuller:

With reference to information requested by you in communication dated November 27th.

Answering your second question first, this department does not object to distribution of milk in paper containers provided the containers are paraffined in the plant where they are filled and just prior to filling.

Milk has been distributed in paper containers in Jersey City by four large milk companies for over a year, we see nothing objectionable about this method of distribution and apparently it is satisfactory to the consumer.

Yours very truly,

Dennis J. Sullivan
Dennis J. Sullivan
Deputy Health Officer.

2548

PLAINTIFF'S EXHIBIT 7.

(Letterhead of City of Wilmington, Delaware.)

November 30, 1936.

Mr. Edward R. Fuller, President,
Silver Seal Dairy Products Co.,
612 S. 24th St.,
Philadelphia, Penna.

Dear Mr. Fuller:

In answer to your phone call of November 27th in reference to our finding of paper containers.

I want to say that they are without a doubt the best in our city, from a bacteria count they are almost 100%. I have never picked up a sample over 3,000 bacteria since they have been coming into our city, and I have visited your plant and find it complying with all our rules and regulations from a health standpoint.

Very truly yours,

John C. Foote,
John C. Foote,
Milk Inspector.

P. S. As you know I was opposed to the containers when they first made their appearance but after giving them a fair trial here, I will say they are a perfect container and will be a credit in any community.

John C. Foote
J. C. Foote.

2549

PLAINTIFF'S EXHIBIT 8.

**Commonwealth of Pennsylvania
Department of Health
Harrisburg.**

December 1, 1936.

**Silver Seal Dairy Products Co.,
612 S. 24th St.,
Philadelphia, Pa.**

Attention: Mr. Fuller, Pres.

Gentlemen:

I am very glad to give you my opinion on the use of a paper container for milk distribution.

The Pennsylvania Department of Health has for a long time approved the use of paper containers for milk distribution. This includes the paper container which is made in the factory and paraffined before shipment to the milk plant in a sealed package, and the paper container made completely in the milk plant and subjected to a bath of hot paraffin just before filling. We think this latter bottle furnishes a container for milk which more nearly meets our standards for a sterile milk container than does the glass bottle put through the average soaker type washer where it has been subjected to an alkaline treatment and later a steam or hot water treatment.

We have not been satisfied with the condition of the average glass bottle as it comes from a soaker type washer. It has been our experience that it is difficult to get a complete job of sterilization of the glass container due to the mechanical failures of the machine, the maintenance of the proper water temperatures and the fact that the glass container has gone through an alkaline solution which, because of not being changed frequently may be a source of contamination rather than a cleansing agent. We feel so strongly on this subject that we contemplate adding a last rinse with chlorinated water.

Supervision of a milk supply is much easier from a health standpoint where a paper container is in use than with a glass container. We also like the idea of the paper container being used once and then destroyed. A glass container lends itself so easily to so many uses other than that of a container for milk and so often gets back to the milk

plant in such bad condition that sterilization is such a difficult job that we could welcome the extension of the use of a paper container more generally.

Very truly yours,

W. K. Moffett

W. K. Moffet, P.

WKM:P

Director, Bureau of Milk Sanitation.

2550

PLAINTIFF'S EXHIBIT 10.

(Letterhead of Milk Control District No. 1, Ardmore, Pa.)

Silver Seal Dairy,
612 South 24th St.,
Philadelphia, Penna.

December 2, 1936.

Gentlemen:

In response to your recent inquiry, please be advised that I am satisfied that the Silver Seal Dairies have met substantially all of the requirements for the production, processing distribution and sale of milk and cream in this District and have continued to do so. I particularly favor the use of the single service container for milk distribution. The difficulties we encounter in washing glass bottles are such that I doubt that they will ever be fully overcome.

Very truly yours,

Geo. W. Grim.

George W. Grim.

2551

PLAINTIFF'S EXHIBIT 11.

(Letterhead of Health Department of the City of Baltimore.)

January 5, 1937

Mr. Edward R. Fuller,
President,

Maryland Seal Dairy Products Corporation,
56 Central Savings Bank Building, Baltimore, Md.

Dear Mr. Fuller:

In reference to the application which you filed with this department on October 9, 1936, for a pasteurizing milk plant permit and the use of the paper container (Pure Pak) for the sale of milk in the city of Baltimore, I wish

to advise you that after giving very careful study to the matter and in accordance with Article 16, Section 64, Rule 12 of Baltimore City Code of 1927, which reads as follows:

"Pasteurized milk or cream shall not be bottled or placed in other receptacles in any place other than in the plant where it has been pasteurized. No person or dealer in milk shall offer for sale, sell or deliver any milk or cream in quantities of less than one gallon unless the same be kept, offered for sale, sold or delivered in sanitary glass bottles or such other receptacles or in such other manner as may be approved by the Commissioner of Health"

I hereby approve for use in the city of Baltimore the paper container known as the Pure Pak provided the Maryland Seal Dairy Products Corporation complies fully with the following requirements of the Commissioner of Health of Baltimore City:

1) That the paper blanks are to be received by the dairy dye-cut, printed with the type of milk or milk products sold, name of the dairy, address of the dairy and the day of pasteurization, and that no advertising matter other than that required under the Cap Regulation of this department shall be contained thereon, and

2) That the paper blanks are to be shipped by the paper manufacturer to the dairy in tightly closed containers and are to be made from the best obtainable white Spruce pulp and that no discarded material is to be used in the manufacture of the paper blanks, and

2552 3) That glue used on the side seams of the blanks by the paper manufacturer is to be either of a soy bean glue or tapioca glue base and, further, that the glue used by the dairy in glueing the bottom of the container is to be also of a soy bean or tapioca glue base, and

4) That paraffin bath used for the submerging of the container is to be maintained in a flooded condition at all times so as to insure the complete submersion of the container in paraffin, and

5) That the paraffin used is to be of the highest obtainable quality and that the paraffin catch-basin is to be drained daily; further, that there is to be maintained an automatic feed of paraffin which shall pass through the smallest possible screen through which melted paraffin can pass and that the paraffin bath shall be completely drained every week or more often if necessary and that no drawn-off or salvaged paraffin from the bath shall ever be used for the paraffin of the containers, and

6) That machine shall be equipped with a thermo-regulator which will maintain at all times a temperature of 180 degrees in the paraffin bath, plus or minus, as is desired for the complete coverage of the container with paraffin, and.

7) That the machine shall be so designed as to make it impossible for any hand contact whatsoever with the container prior to its being filled and sealed, and

8) That the parts of the machine used in the filling of container shall be free from pits, cracks and crevices, and shall be so constructed that they can be readily cleansed and sterilized, and

9) That the measuring device used in connection with the filling of the container shall be set in accordance with the regulations of the Bureau of Weights & Measures, with the understanding that if any adjustments are necessary in connection with this procedure that they shall not conflict with the sanitary regulations of this department, and

10) That the Maryland Seal Dairy Products Corporation agrees to comply with all requirements of the Commissioner of Health of Baltimore City which, in his opinion, may subsequently be necessary for public health protection in addition to those hereinbefore specified.

To make the above approval binding and in accordance with the provisions of the City Ordinance I hereby request that you acknowledge receipt of this letter and that in your acknowledgment you assure me that the Maryland Seal Dairy Products Corporation will comply fully with the ten requirements as specified in this letter.

I will expect you to closely work with Mr. J. M. Lescure, Director, Bureau of Milk Control, in the approval of your plans and lay-out for your building and also the approval of the different appliances used in connection with the operation of your company.

Very truly yours,

H.

Huntington Williams, M.D.,
Commissioner of Health.

2553

PLAINTIFF'S EXHIBIT 12.

Sanitation of Paper Milk Containers.*

By J. R. Sanborn and Robert S. Breed,**
New York State Experiment Station, Geneva, N. Y.

The present discussion will necessarily be limited to a study of paper milk containers from the standpoint of the laboratory. If information is desired regarding the practical problems involved in their use, savings, cost, relative merits of various types of containers, etc., it will be found that the men in the industry that have had real experience can answer these questions better than anyone else.

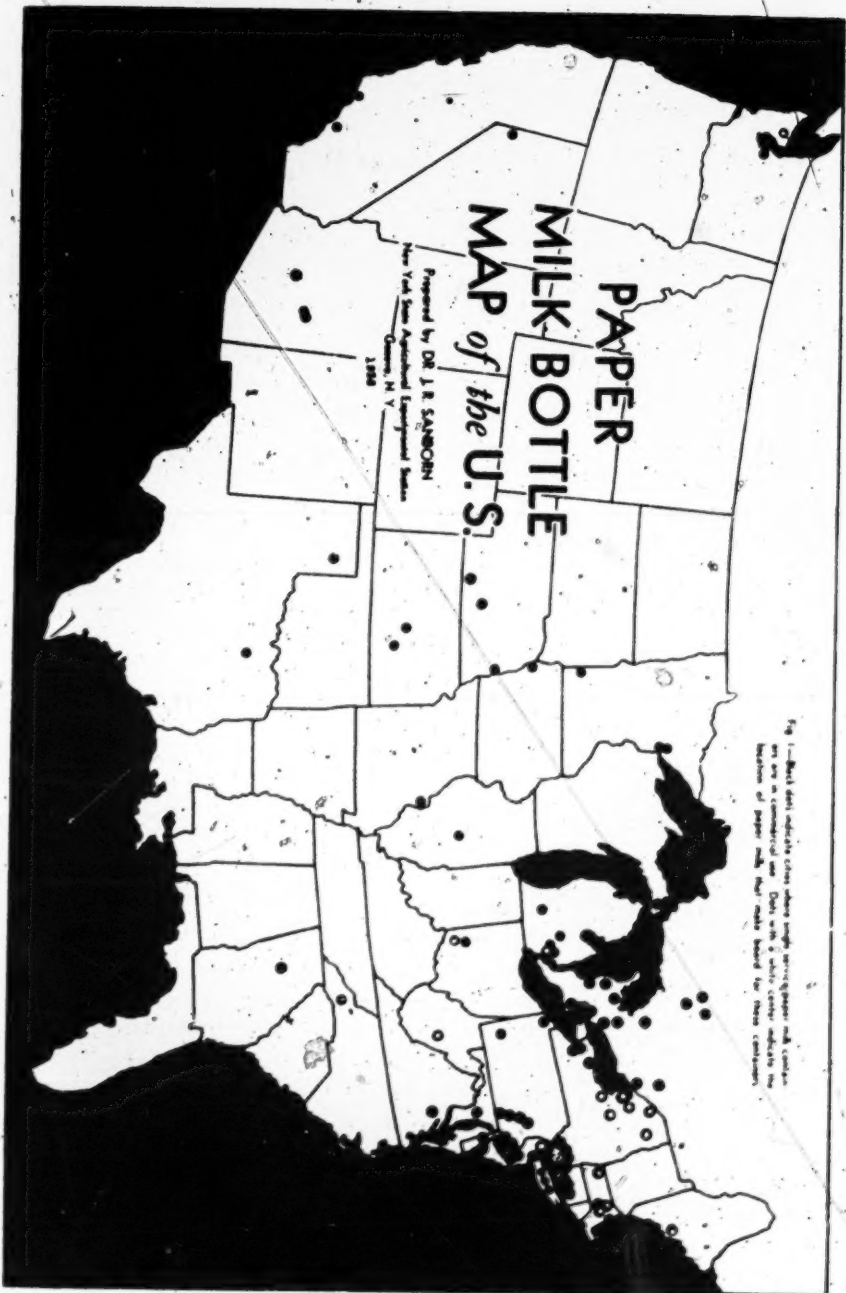
It so happens that the use of paper milk containers has been greatest in the New York metropolitan area. The Sheffield Farms Company, Inc., was a pioneer in a study of the practicability of these containers. Later, the Borden Company studied the practical problems involved on an even more extensive scale through their subsidiary, Dairy Sealed, Inc., of Ozone Park, Long Island. The latter plant was built to determine what economies could be effected where all milk and cream handled in a milk plant was packaged in paper containers.

The results of our own sanitation studies are presented here in a series of tables. A map (Fig. 1) has also been prepared which gives the location of cities where installations have been made for bottling milk in paper containers. Such containers are also used in many other cities for minor purposes, such as for delivery of milk and cream to quarantined residences, and distribution of buttermilk and other dairy products. The map is not entirely accurate as rapid changes are taking place, but it is reasonably so. Approximately 1,200,000 single service milk and cream bottles are used daily in this country.

* Presented before the Laboratory Section of the 31st Annual Convention, International Association of Milk Dealers, Cleveland, Ohio, Oct. 18, 1938.

** Approved by the Director of the New York State Agricultural Experiment Station for publication as Journal Paper No. 300, December 7, 1938.

Figure 1



The location of paper mills that make the paper board used for these milk bottles is indicated on the map by the use of black dots with a white center. A surprising number of them are located in the area in and near New York State.

As some persons may not be familiar with the various types of single service milk containers, two photographs are shown. The first (Fig. 2) includes paper containers that have been tried out in at least one practical installation. Some containers are filled from the top, some are filled from the bottom; some are completely fabricated, others are partially fabricated, and still others are made from blanks and paraffined in the milk plant just before they are filled with milk or cream.

As a matter of general interest a second photograph (Fig. 3) which includes types of single service containers in use in Canada and Europe. These have been secured from investigators in other countries whose replies indicate that no other country is using this type of container as extensively as is the United States. It is stated that about 400,000 are used daily in Great Britain and that plans are being made to double this number in the near future.

The pictures give some idea of the varied nature of these containers. There may be some that find advantage in this fact but there are many that find diversity a disadvantage.

Figure 2



Figure 3



Fig. 2 (above)—Paper milk containers in commercial use in the U. S. A.
Fig. 3 (lower)—Paper milk containers in use in other countries.

.. As soon as a real study of the sanitary problems affecting the use of paper milk containers is started, it becomes evident that this is only a part of the larger problem of the sanitary use of paper wrappers and containers for all kinds of food. While milk is the most perishable and easily contaminated food that is placed in paper containers, other perishable foods such as dairy products (sour cream, frozen cream, cottage cheese, ice cream, etc.); oysters, meats, or less perishable products such as bread and the like, deserve really clean and sanitary handling in paper containers and wrappers. Much attention has been given by the paper industry to the development of sanitary wrappers and containers; but their efforts have never been extensively studied and judged by outside agencies. In fact, no very satisfactory methods have been developed for doing this.

In the case of paper milk bottles, there are two general classes of sanitary problems (1) those that arise in the making of containers themselves and (2) those that arise in connection with the shipping, storage and use of the containers in milk plants.

In the present report chief attention is given to the sanitary problems that arise in connection with the making of the containers. The nature of the second type of problem is well indicated in the suggested sanitary regulations developed in connection with two conferences on this subject that have been held at the Experiment Station at Geneva.* They concern proper methods of shipping, storing and handling of finished containers, proper methods of filling containers with milk and cream, and proper methods of keeping filled containers cool and clean until delivered to the consumer.

The most important measure of sanitation that is applied to the finished container is to determine its bac-

* Jour. Milk Technology, 1, 1933, 47-53.

Table I—Rinse Counts Obtained from Various Types of Containers

Con- tainer Type	Total Number	Rinse Counts per Container during 1937					Rinse Counts per Container during 1938						
		Percent- age show- ing no growth	0-5	6-100	101-250	251-500	500+	Percent- age show- ing no growth	0-5	6-100	101-250	251-500	500+
1	4587	43	88	10	1.5	0.14	0.36	57	93	6	0.93	0	0.07
2	1523	9	85	10	1	0.7	3.3	31	76	20	2.0	0.4	1.6
3	1299	0.5	13	80	3	1.4	2.6	22	70	27	0.7	0.3	2.0
4	180	—	—	—	—	—	—	34	83	15	0.3	0	1.7
5	70	—	—	—	—	—	—	37	87	12	1	0	0
6	120	18	71	27	2	0	0	—	—	—	—	—	—
7	74	12	60	36	4	0	0	—	—	—	—	—	—

2554 teriological condition as filled with milk. This is partially accomplished by rinse tests. As soon as rinse tests were made it was found that the paper containers were so nearly sterile that some modification was needed of the usual standard rinse procedure for glass bottles which is carried out by rinsing with 100 c.c. of sterile water. The tests of the paper containers have been carried out by rinsing with 10 c.c. of sterile water, the entire amount of the rinse water being used as an inoculum in one large or three ordinary size petri plates. Because frequently under these conditions no colonies developed on the agar plates, an even more severe technic was developed. In this technic 10 c.c. of sterile broth was added to each of a series of finished containers. After shaking and incubating, the percentage of containers in which the broth remained sterile was noted.

Table I shows the results obtained from the examination of nearly 8,000 paper milk bottles of seven different types. The work was done in a series of nine cooperating public health and industrial laboratories, duplicate lots of containers being collected by random sampling, carried out under supervision in 12 different factories or milk plants. As an improvement in conditions was noted as the work progressed, results are arranged so as to contrast the findings secured in 1937 with those secured in 1938. This improvement is noted best by comparing the number of containers examined in 1937 that show no growth of colonies on the plates (Column 3) with the similar results obtained in 1938 (Column 9). A few containers were found that gave counts in excess of 500 per container. The number of these found in 1938 (last column) was somewhat lower than the number found in 1937 (Column 8). It is not clear why these higher counts occur. The number of these counts is always small and their appearance in a series of counts irregular. It is even possible that faulty technic may account for some of them. It is very rare for any of these higher counts to reach a size greater than one per c.c. of capacity, the standard usually accepted as a reasonable one for milk containers.

While the cause of these higher counts is being sought in an effort to eliminate them, the significant figure to note is that, regardless of the type of container, the number of essentially sterile containers is large. In 1938, all containers tested showed more than 70 per cent with counts

less than 5 colonies per container, not per c.c. the commonly used unit of measurement for bacterial counts from milk.

In other words, the number of bacteria added to a quart of milk from a paper container even where the number present in the container is relatively large is still so small that it would cause no detectable increase in the count per c.c. of milk. In fact, a container that yields a count of less than 5 colonies per container may be regarded as essentially sterile.

Moreover, when the nature of the few bacteria present is determined it is found that they are common non-pathogenic, spore-bearing bacteria (*Bacillus subtilis*, *Bacillus cereus*, *Bacillus mesentericus*, etc.), saprophytic micrococci, sarcinae, and actinomyces, and some spores from wood fungi. All of these, with many other microorganisms, are found in the pulp suspension as it is carried to the paper machine and over the hot drier rolls in the paper making process. The surviving organisms are all of very heat resistant types as the temperatures reached are much higher than those used in the pasteurization of milk. No pathogenic organisms could survive the temperatures used.

Milk container board is made from virgin stock so far as we have discovered in visiting a dozen mills making this type of paperboard. Some of the stock may be ground wood pulp but it is usually chemically purified by the sulfite or sulfate process. A variety of coniferous trees are used for the logs out of which the paper is made. In the Eastern United States, a variety of spruces are used, such as white, black and red spruce. Eastern hemlock and balsam fir logs are also accepted. In the south, the southern yellow pine is used and in the northwest, western hemlock. The pulp made from the washed logs is usually sterile either as made by the hot grinding process, or as it comes from the chemical digesters. However, as the pulp is floated in water and allowed to circulate through pipes and chests, microorganisms develop almost as readily as they do in milk. Where dead ends are found, storage of white water is practiced, or other conditions are permitted that allow opportunity for growth of bacteria and other microorganisms, they develop in large numbers.

For this reason, a determination of the number of living bacteria per gram of disintegrated board becomes a meas-

ure of the bacterial condition of the pulp. This record secured from the finished product even more accurately interprets conditions previous to the paper making processes than similar counts from pasteurized milk interpret the bacteriological condition of the raw milk.

Table II shows the results obtained from plating disintegrated pulp from 824 samples of board manufactured

Table II—Bacterial Counts Per Gram of Disintegrated Paperboard Obtained Between July, 1937, and October, 1938.

Grades of Paper	Total Number Tests	Percentage showing no growth	Percentage yielding counts between						
			1-50	51-100	101-250	251-500	501-1,000	1,001-10,000	10,001-40,000
Paperboard of Virgin Stock									
Milk container board	824	5	30	26	21	10	8	0	0
Ice cream and butter boxes; cut, plate, cap stock	77	4	47	35	7	5	2	0	0
Paper straws	25	44	56	0	0	0	0	0	0
Paperboard containing:									
Secondary Stock									
Fiber cans, breakfast food cartons, etc.	52	0	0	0	0	10	8	48	34

for use in milk bottles. About 5 per cent of these tests yielded plates that did not develop any colonies. Such sterile plates have been found more frequently in recent months since the paper mills have given greater attention to maintaining better conditions in their plants. Some counts have, however, been higher than 500 per gram of board and have even reached a thousand per gram of board where mill operators have not yet succeeded in bringing about proper conditions in the mills.

Results secured from the disintegration of paper straws shows even lower counts than those from the milk bottle board. The low counts are probably due to the fact that the thin walled straws are impregnated with paraffin at a very high temperature, rather than because they are made from better pulp than the milk bottle board.

Seventy-seven tests of ice cream containers, butter

boxes, cup, plate and milk bottle cap stock made from virgin stock yielded results much like those secured from milk bottle board.

However, when paper materials containing secondary stock (envelope trim, old newspapers, waste papers, etc.) are examined the counts are much higher. Stock of this sort is used in some ice cream cans, breakfast food cartons and the like. No counts were obtained from boards containing secondary stock that were lower than 250 per gram of stock and 34 per cent of the counts were greater than 10,000 per gram. None exceeded 40,000 per gram. Counts that indicate the presence of numerous bacteria are common as less care is given in making the board that is used in packaging dry foods than is given board used in packaging moist, easily contaminated foods.

If Table II had been arranged so as to contrast results secured in 1937 with those secured in 1938, improvements would have been shown particularly where mills have given special attention to the production of a paper board that is essentially sterile.

Some public health officials have said to us, "Why worry over a few bacteria that may get into milk from wood pulp when they are of harmless types? The number of harmless bacteria in the best of our milk supplies is so large per quart bottle that the addition of 5 to 250 per bottle from the wood pulp is meaningless?"

This is really true but our answer has been, "When it is easily possible to have the containers essentially sterile, why not have them so?" In fact, we believe that the paper industry will really effect economies in making a sanitary paper board sufficient to pay the additional costs involved.

Some factors other than the bacteriological condition of the board help to determine the final count. Adhesives are used in the making of all paper milk bottles. Unless the adhesive is sterile, bacteria may be added to the container in quite large numbers. If fermentable starchy, or casein adhesives are used, care must be taken to keep them sterile. The thermoplastic, non-fermentable adhesives that are coming into general use are even better.

Moisture proofing also influences the rinse count of the finished container. If this is not done efficiently the milk may soak into the paper board used for bottles or bottle caps and become contaminated with such bacteria as are

found in the board. When the paraffining is done properly, the bacteria are held in the board and thereby prevented from appearing in the rinse water.

Efficient coating with paraffin is dependent upon many things, but in a general way, the best coating is accomplished at temperatures between 165 and 175° F. Where high temperatures are used (250° F.) to impregnate the board, a second paraffining is sometimes used at the lower temperature in order to coat the board. Where board is left partially exposed as may occur when temperatures over 175° are used, rinse counts from such containers are usually higher than from well coated bottles. This happens even though the high temperature used in paraffining might be expected to kill the bacteria more effectively. Where containers are not effectively moisture proofed, successive rinses with sterile water yield counts as high as those from the first rinse even after as many as ten trials.

From these data, it is evident that paper milk bottles are capable of meeting very severe sanitary standards as indicated by the success thus far attained in making board with a very low bacterial content and by the very low rinse counts of the finished containers. The sanitary condition of the finished container is comparable with the sanitary condition of the glass bottles found on well operated certified farms. Rinse counts for glass bottles as washed and sterilized in ordinary milk plants are higher and sometimes much higher than those obtained from paper bottles. Data supporting this statement will be found in the general summaries prepared by the Committee on Milk Supply of the Public Health Engineering Section of the American Public Health Association.* In these reports it is stated that only 56.9 per cent of the glass bottles examined from milk plants met a standard of less than one bacterium per c.c. of capacity, i. e., approximately 946 per quart container.

In a general way, paper containers can, therefore, meet much more severe rinse count standards than the average glass bottle provided they are properly handled and stored in the interval between the time when they are manufactured and the time when they are filled with milk. Improper conditions are detectable by the local dairy inspection group and can be eliminated where the industry un-

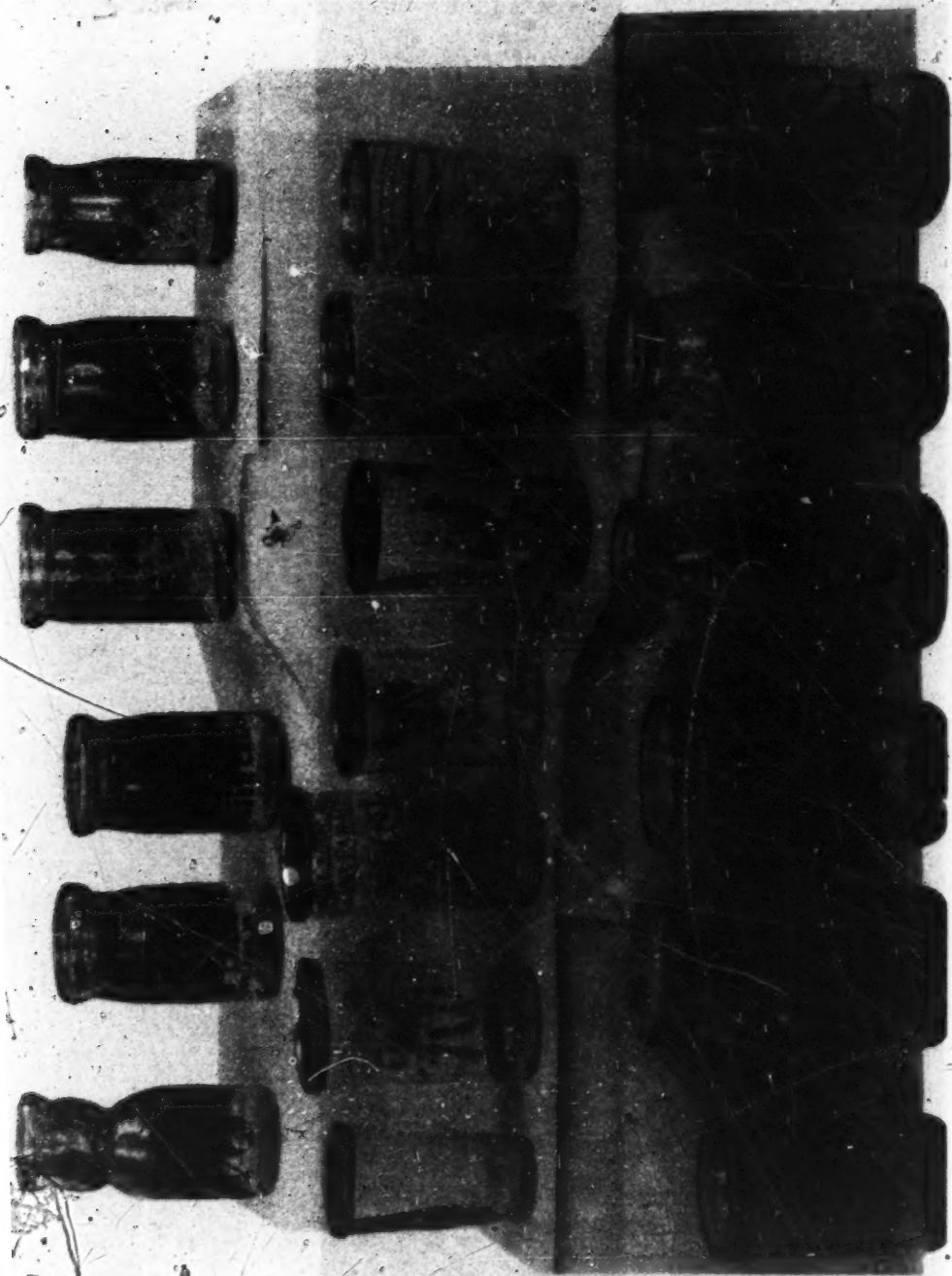
* Yearbooks for 1933-34, p. 72, and 1934-35, p. 100.

derstands the situation and the dairy inspector carries out his duties.

Several makers of paper milk bottles feel that they can maintain higher standards of sanitation during the manufacture of these paper containers where this manufacture is carried out under their own supervision in their own factories. Other makers supervise the fabrication of their containers in milk plants: It would seem as though the place where the sterilization is accomplished is not a vital issue. The important matter is to have the finished containers clean and essentially sterile when filled with milk. In all cases, we feel that the single service containers should be able to meet a standard of freedom from pathogenic organisms even more severe than those enforceable for our present milk containers.

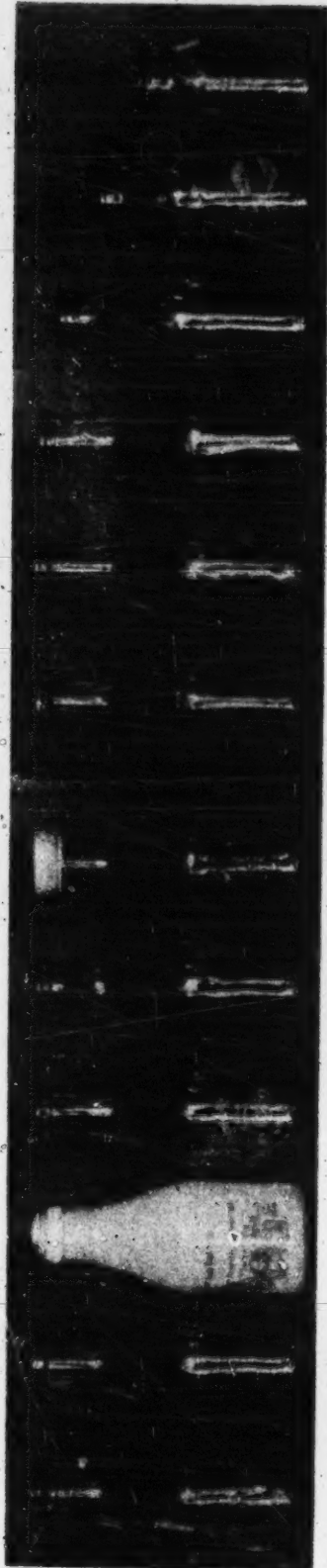
1493

Plaintiff's Exhibit 13



Plaintiff's Exhibit 14

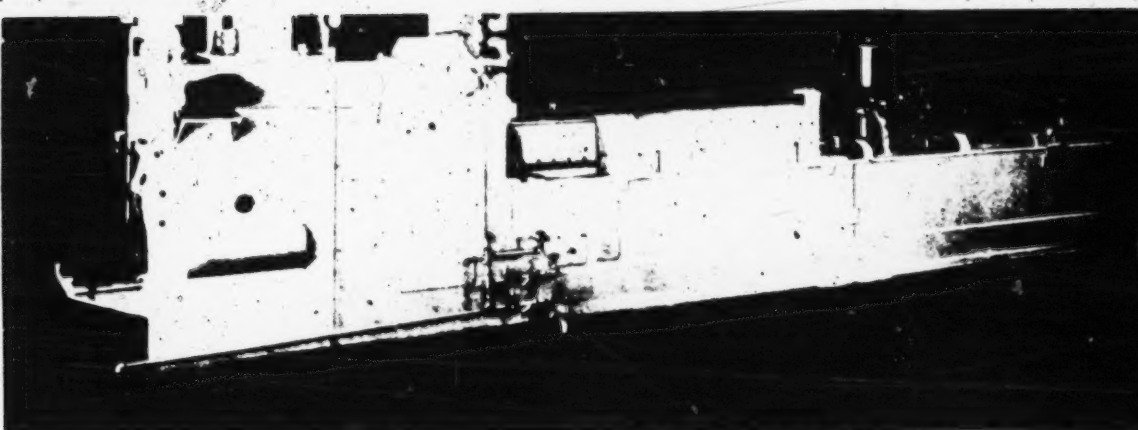
1495

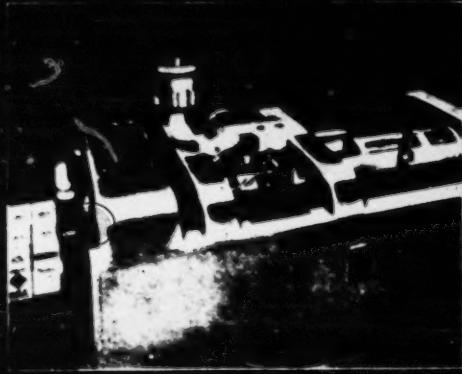


Plaintiff's Exhibit No. 15 (Reference to). 1497

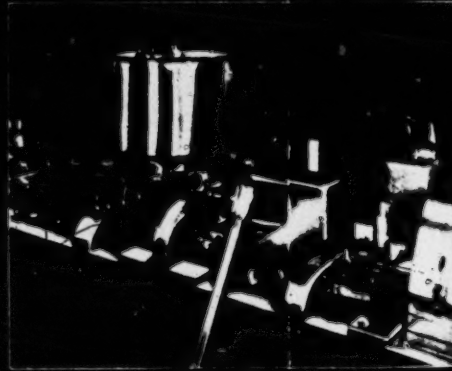
Plaintiffs' Exhibit No. 15 is omitted at this point as the same appears as figures 2 and 3 of Plaintiffs' Exhibit No. 12.



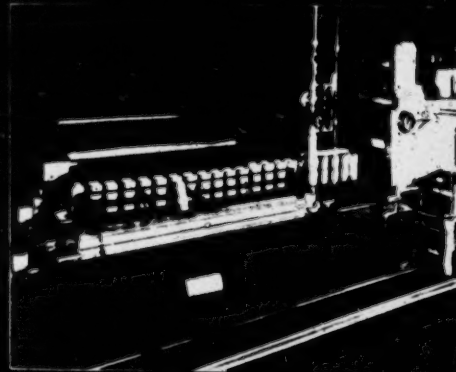




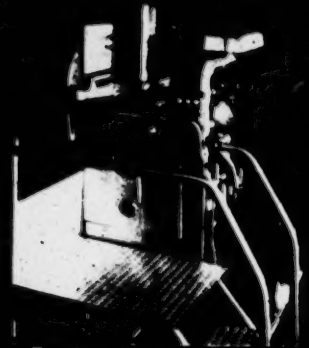
Sealing Unit



Filling Unit

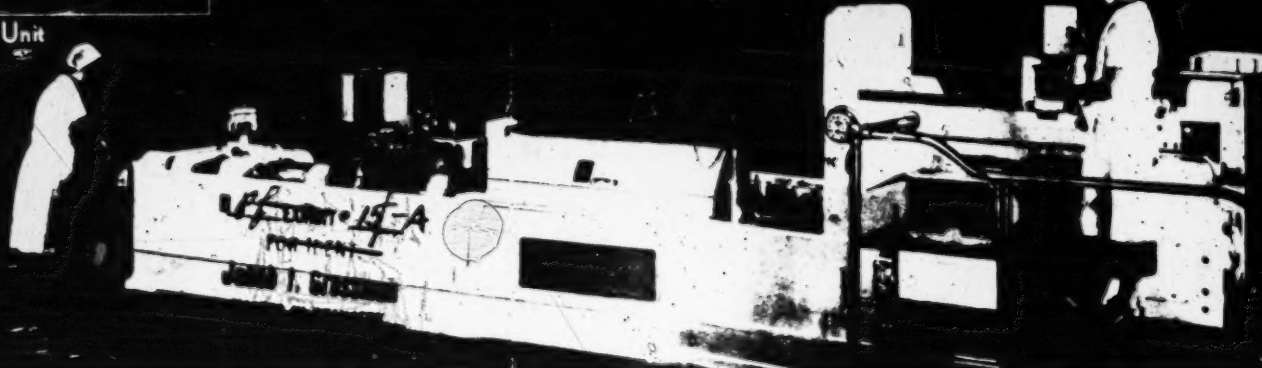


Cooling Unit



Feeding Unit

Plaintiff's Exhibit 15-A



2561

EXHIBIT NO. 16.

Single Service Containers for Milk and Milk Products.

J. R. Sanborn and Robert S. Breed.

**New York State Agricultural Experiment Station,
Geneva, New York.**

Recent Developments in Paper Milk Container Sanitation.

The single service paper container for milk and milk products in being subjected to critical sanitary investigation. Since last summer, two paper container conferences have been held at the New York State Agricultural Experiment Station for the purpose of considering problems in standardization and control. Those present included public health officials, paper container manufacturers, research workers, and representatives from the dairy and pulp and paper industries. Recognizing the definite place that single service containers seem destined to occupy in milk distribution for metropolitan areas, these conferences discussed improvements in and control of methods of manufacture and handling so as to secure the highest possible sanitary quality. In New York metropolitan district, paper milk containers have been allowed to develop normally, which has been particularly helpful in revealing both the satisfactory and the unsatisfactory features involved in their manufacture and use. In this way it is possible to work effectively toward correcting undesirable conditions.

In the course of its relatively brief period of practical use, the paper milk container has spread throughout metropolitan New York and reached various cities of the middle West, South and West Coast, extending to Seattle and Los Angeles and into Canada. One milk plant in New York City which, in March, 1937, turned out daily 160,000 to 180,000 paper packages of milk and cream, had increased its output in June of last year to 250,000 packages. It is estimated that the daily use in this country of milk and cream in paper amounts to approximately 1,200,000 of these single service containers. Almost one-half of this production is used in New York City. Over one hundred towns and cities in the United States and about thirty in Canada, employ

paper containers regularly for the distribution of milk and cream. Their use for buttermilk and other milk products is practically universal.

Public Health Significance.

Public health agencies are availing themselves more and more of the benefits which may be derived from the use of single service containers. In cases infectious disease, delivery of milk in paper containers is an important factor in control. There are indications that this means of distributing milk may decrease incidence of contagious disease during epidemics and eliminate the possibility of spreading pathogenic organisms from house to house. The use of single service containers for milk is advisable in quarantined residences, hospitals, and other institutions caring for infectious diseases.

Bacteriological Control in the Manufacture of Milk Container Board.

The pulp and paper industry little realized the situation it was facing when it attempted to put such a perishable food as milk in paper. While clean, sound pulp wood is an entirely suitable raw material for the fabrication of containers for perishable foods, conditions for the manufacture and handling of pulp and paper are sometimes not sufficiently clean and sanitary to meet public health standards. In order to secure and maintain a high standard of sanitary quality, a group of mills producing milk container board has undertaken an extensive program of microbiological control and voluntary inspection. Wood pulp is produced in a bacteria-free state and it is the purpose of these mills to utilize methods of treatment and handling that will preserve the bacteriological and chemical purity of food wrapper and container stock. The methods used are based upon cleanliness, process water purification and bactericidal treatments.

The paper produced by most of these mills is of high sanitary quality and as nearly sterile as it is possible to make it. Milk container board is carefully wrapped and shipped under conditions that protect rolls of paper or sheeted stock from contamination. Container factories, converting plants and dairies are becoming increasingly appreciative of the

importance of maintaining the clean and bacteria-free condition of the foundation board. Investigation has shown that the sanitary state of this board usually determines the sanitary state of the finished containers. Methods and facilities for handling or manipulating this board must not, therefore, nullify the sterilizing effects produced during its manufacture. These effects may be preserved or enhanced through the development of efficient methods of container fabrication.

The lessening of human contacts with container board and the general utilization of mechanical methods of handling, provide a direct means of protecting sterile board. The sealing of containers by means of non-fermentable adhesives, preferably synthetic, thermoplastic varieties, aids in the maintenance of high quality. Finally, the application of a suitable moisture-proof coating renders the paper container sufficiently non-absorbent to serve as a convenient and efficient receptacle for receiving and distributing milk and milk products. The moisture-proofing material generally used at present is fully refined paraffin which, in addition, may also act as a secondary line of defense when applied in the hot, molten state by eliminating such organisms as may reach the container by casual contamination. Other moisture-proofing treatments are under investigation. Whatever future developments may be, however, it will always be necessary to rely upon the sanitary condition of the foundation board for uniform sterility and high quality.

Standardization and Quality Control.

Laboratory examination of container shipments includes determination of the bacterial content of paper blanks used in fabrication processes as well as of finished containers by disintegration and rinse methods. These products are also examined for sterility, efficiency of coating, dirt, slime spots and other foreign matter. The results of rinse tests and visual inspections show close correlations with bacteriological counts of the original board. Technic for making these counts has been developed and described during the present investigation.¹ It consists of repulping the board in sterile water by means of a sterilized beating device and plating the resulting pulp sus-

1. American Journal of Public Health (1938) 28: 576.

pension according to standard bacteriological procedure. The results are reported in terms of the number of colonies developing per gram of board.

Pulp and paper mills will derive considerable benefit from a knowledge of the bacterial content of a run of board and control measures, if necessary, may then be effectively employed. Container manufacturers and public health laboratories will also find such a disintegration method useful in determining quality.

A tentative board count of 500 colonies per gram has been set as a reasonable and enforceable standard. Mills will ordinarily be able to meet a much more severe standard. Due, however, to temporary partially unexplainable increases in board counts during certain seasons of the year, it seems advisable to retain, for the present the maximum count of 500. Cooperating pulp and paper mills are uniting in a program of sanitary control that should promptly bring to the paper container industry a board which is nearly or actually sterile.

In more than 500 bacteriological examinations of board from nine different mills, using the disintegration technic, 53 per cent yielded less than 100 colonies per gram. According to the best record made last year by a single mill, in 150 tests, 85 per cent of the examination yielded less than 100 colonies per gram. Samples of milk container board from this mill are sometimes essentially bacteria-free.

This is a worth-while contribution to sanitary food packaging. The use of secondary stock consisting of old newspapers, envelope clippings, chip board, and cellulose waste, in the manufacture of food containers such as bulk ice cream cans and breakfast food cartons has sometimes resulted in undesirable contaminations. The bacterial content of boards of these types usually varies from 2,000 to 50,000 per gram. For milk container board, on the other hand, only virgin chemical or mechanical pulp is employed, which is pulp that has not previously been used for commercial purposes. This high quality stock is the only kind that should be used in paper containers for perishable foods.

When food container board is made from virgin pulp using pure process water and under sanitary methods of manufacture, a paper board is produced which is free from all chemical reagents and other foreign matter, and all except a few non-pathogenic types of heat resistant bacteria.

This makes a product that is entirely suitable for direct contact with dairy products.

Read before the Joint Annual Conference of the American Association of Medical Milk Commissions and Certified Milk Producers' Association of America, The Clift Hotel, San Francisco, Calif., June 13, 14, 1938.

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PLAINTIFF'S EXHIBIT NO. 17.

Reprinted from Paper Trade Journal, March 17, 1938
Vol. CVI, No. 12.

Reasonable Sanitary Standards for Paper Products.*

By J. R. Sanbord.¹

Abstract.

Reasonable sanitary standards for food wrappers, food containers, paper drinking cups, and hospital cellulose are under consideration by public health authorities and purchasing departments. Bacteriological examination of paper and container board provides health laboratories with a means of determining the sanitary condition of these products and judging the probable sanitary state of mills that produce such paper. Studies of number and types of bacteria in pulp and paper show a close correlation with degrees of microbiological control established during manufacture. Effective microbiological control means adequate and consistent purification of process water; general plant sanitation and cleanliness; utilization of uncontaminated high grade pulps and raw materials; employment of bacteria-free water at calenders; effective use of bactericidal treatments; and strict methods of slime prevention.

Microbiological Problems in Pulp and Paper Manufacture.

For many years it has been known that pulp and paper mills provide favorable conditions for the growth and mul-

* Presented at the Annual Meeting of the Technical Association of the Pulp and Paper Industry, Waldorf-Astoria Hotel, New York, N. Y., Feb. 21-24, 1938.

1. Member TAPPI, New York Agricultural Experiment Station, Geneva, N. Y.

* Approved by the Director of the New York State Agricultural Experiment Station for publication as Journal Paper No. 253, February 11, 1938.

tiplication of microorganisms. Nearly all of these organisms come from water supplies, though pulp wood and various raw materials may contribute to the contamination. The activities of pulp and paper mill microorganisms are not usually apparent to mill operators until they reach advanced stages of development, when discoloration and decomposition of pulp, slime formation, or the occurrence of spotting or objectionable odors in finished products prove a menace to production and quality. These microbiological problems, which require the application of effective preventive measure, have caused the industry much trouble and economic loss.

In spite of the care that has been given to microbiological control, investigations of certain grades of pulp and paper have repeatedly demonstrated the presence of undesirable microorganisms from pulp and paper mills. This considerable bacterial contamination already recognized by paper makers as a factor detrimental to high quality, has caused public health officials and sanitarians to view critically and sometimes doubtfully, the hygienic condition of paper products.

Sanitary Quality in Paper Products.

Health groups and purchasing departments are interested in the sanitary condition of paper used in direct contact with milk and other perishable foods, and of products for personal and medical requirements, such as paper drinking cups and hospital cellulose. In order to secure the greatest possible suitability and safety in paper for various uses, sanitary standards and specifications are being extended and strengthened.

Meeting the need of health laboratories for a routine bacteriological method by which they can determine from total bacterial counts the hygienic condition of paper and judge the sanitary state of the pulp and paper mill producing it, a technic has been devised for rapid disintegration of paper to uniform suspensions suitable for bacteriological plating.

In view of the unusual public health significance of milk, an extensive investigation is being made of the bacterial content of food container board used for single service milk containers, carried or in conjunction with microbiological surveys of mill systems. Findings indicate, first, that close

correlations exist between mill sanitation and production of high quality board; second, mills which utilize polluted or inadequately purified water and fail to effectively curb the development of microorganisms throughout the process of pulp and paper manufacture cannot produce food container board which meets the requirements of public health authorities; third, periodic laxity in water purification, slime control, and cleanliness, increases the difficulty of producing paper conforming to sanitary specifications; fourth, in mills where strict control of microorganisms is maintained throughout the year, conditions are favorable for the production of paper board having low bacterial counts.

Sanitary Status of Pulp and Paper Mills.

The sanitary status of a mill depends upon the degree to which it achieves strict microbiological control. Strict microbiological control means adequate and consistent purification of process water; utilization of uncontaminated, high grade pulps and raw materials; effective use of bactericidal treatments to prevent contamination of system from re-used process water and colonization of microorganisms. Pulp and paper mills that fail in effective control must cope with a wide variety of microorganisms, many of which are sufficiently heat resistant to survive drier temperatures and form colonies in culture dishes prepared from aseptically disintegrated board. These counts may vary from 5,000 to 50,000 per gram of board, denoting a product that is decidedly unfit for direct contact with perishable foods.

Eliminating from consideration in connection with sanitary specifications all such inferior paper products as those just described, attention is mainly directed in this investigation to those mills which exert effective control of microorganisms. Container board samples from these mills yield counts that are consistently less than 500 per gram. The majority of mills producing milk container board give counts of less than 250, in a few cases less than 100 per gram, even approaching a bacteria-free state. The lowest count boards are as free from bacteria as bleached, 100 per cent sulphite tissue. Board mills producing counts under 100 per gram with reasonable regularity are usually fortunately situated with respect to natural purity of water

supplies and freedom from common sources of extraneous contamination. Bleaching operations may also be used to augment the efficiency of bacterial control.

While the thicker the board, the higher the bacterial counts appear to be, other factors such as drying temperatures, length of time of drying process, quality of pulp employed, microbiological conditions at mills, the purity of calender water, and care taken with the finished paper, also exert a decided influence on the number of colonies developing per gram of paper.

The secret of producing paper which is low in the number of bacteria present lies in bacteriological purification of water supplies and, in order to prevent colonization and spread of organisms, effective use of bactericidal treatments within mill systems. Colonization results in the formation of small slimy masses of growth which resist chemicals and heat and introduce into pulp and paper persistent and aggressive types of microorganisms. This development in its exaggerated forms is known to the mill operator as 'slime'. From the standpoint of bacteriologists and sanitarians effective control means prevention of incipient growth accumulations by eliminating contamination at its sources and utilization of specific bactericidal treatments. Recommended procedures are neither expensive nor impractical. They include persistent cleanliness, constant supervision over portions of a system in which organisms readily multiply, employment of bacteria-free water at calenders, and effective use of bactericidal agents. The chief purpose of the microbiological survey is to increase the efficiency of control measures through specific knowledge of predominating types of organisms and of local points of contamination where bacteria-killing action is needed.

Reasonable Sanitary Standards.

In the case of paper which is destined for direct contact with foods or for household, medical, or personal uses, it is desirable that these products conform to bacteriological standards now being proposed.

1. **Virgin Pulp.** It is generally agreed that only virgin pulp from clean, sound pulp wood should be employed for food wrappers and containers. Our definition of virgin pulp is pulp that has not previously been used for commercial purposes. Trim, which is properly handled and

protected from contamination is considered as suitable primary stock. Virgin pulp only has already been specified for milk container board, drinking cups and hospital cellulose. Even if secondary pulp can be completely sterilized during recovery, its miscellaneous content of foreign matter and dirt renders it unsuitable for use in stock for perishable foods. As a matter of fact, bacteriological tests on board containing secondary stock indicate that adequate sterilization may not take place. The results reported in Table I confirm this conclusion.

2. **Slime Spots.** Slime due to excessive development of microorganisms in pulp and paper mill systems, is preventable. The presence of slime spots in paper indicates to sanitarians lack of sanitary care and products containing them do not conform to specifications. Identification of this condition by bacteriologists is based on recognition of growth fragments, microorganisms, or characteristic films formed by gelatinous, rubbery, or matted forms of slime growths.

3. **Bacterial Counts.** Through the active interest of several mills, interesting correlations are being drawn between degrees of bacteriological control and bacterial counts in finished paper. It is known that tissue products may contain less than 50 organisms per. gram and approach practical sterility. The most carefully made milk container board is comparable in sanitary quality with the best grade of tissue. While it is not expected that board mills will be able to consistently maintain counts of less than 50, they are doing their best to achieve the lowest possible counts. Nearly all of them produce counts of less than 250. At the same time, it seems inadvisable to specify

TABLE I.—NUMBER OF BACTERIA IN VARIOUS GRADES OF PAPER BOARD USED IN FOOD PACKAGING
(Per gram of finished board. Agar plates incubated at 32 deg. C. for 72 hours)

Fiber cans (Containing considerable secondary stock)	Fiber cans (Containing mostly prime stock)		Milk container board				Unusual sanitary precau- tions taken	Unusual board, sanitary precau- tions taken		
	Mill B		Before strict sanitary control		After strict sanitary control				Unusual sanitary precau- tions taken	
	Mill J	Mill A	Mill B	Mill A	Mill B	Mill C				Mill D
16,938	2,600	1,077	318	301	163	204	35	77	62	21
18,311	3,077	973	423	446	86	175	43	7	42	73
18,165	2,715	2,542	360	450	104	318	51	0	26	65
19,802	985	1,996	597	472	119	172	84	43	93	0
19,866	1,644	2,055	205	229	138	200	177	32	22	97
15,110	2,302	2,280	232	510	187	307	67	11	44	86
26,348	2,406	444			76	167	61	21	36	22
18,000	2,904	440			64	18	36	108	49	105
30,230	2,740	593	Mill E		63	210	44	73	43	44
33,000	789	2,174			65	262	55	0	54	55
23,526	1,606	2,717	425		101	107	66	55	54	102
13,479	1,500	1,788	422		69	97	55	33	11	80
15,580	3,000	2,123	435		140	92	87	21	32	49
13,487	3,562	1,783	536		216	18	129	54	75	54
12,331	4,219	1,974			198		85	44	109	108
14,292	3,617				150		64	22	49	83
	2,102				66		53	44	45	22
					89		43	11	54	28
					156		5	10	43	44
					121		0	54	33	33
					129		117	33	22	11
							77	0	43	33
							44	11	33	22
							107	33	33	33
							32	11	43	22
							22	33	33	33

TABLE II.—RELATION OF VAT CONTAMINATION TO PAPER BOARD COUNTS

Vat. No.	Counts from vat stock comprising board layers	Counts per gram of finished board where relatively high vat counts prevailed.		Counts per gram of finished board where relatively low vat counts prevailed.		Counts per gram of finished board, where vat counts approached bacteria free state.
	Colonies per cc. of stock	Mill A	Mill B	Mill A	Mill B	Mill C
1	3,000*	423	446	85	175	55
2	9,300*	597	472	164	172	33
3	19,500	380	450	97	209	21
4	23,500*	333	444	141	210	54
5	33,750	469	440	106	206	44
6	8,650*		510	170	105	22
7	8,450*		616	257		44
			593	118	107	11
			450	76	97	10
1	390		346	216	92	54
2	180			198	18	33
3	490			87		0
4	150			150		11
5	170			66		33
6	41*			89		11
7	46*			156		

more exacting standards than the count of 500 colonies 2563 per gram of disintegrated board, originally suggested for milk container board, until the effect on these counts of seasonal variations in water supplies, temperatures, and microbiological development have been determined.

The cup and container, and milk container board counts reported below show a close correlation with microbiological surveys. Bacteriological counts obtained thus far on various grades of paper are, however, only preliminary in that they do not adequately reveal the influence of changing mill conditions throughout the year. So far as the manufacture of food container board is concerned an effort is being made to achieve consistently low counts through the establishment of control programs designed to meet seasonal and operative changes. As numbers of microorganisms are suppressed in vat stock, board counts become lower. In cases where it is possible to practically sterilize this stock, the finished board is relatively free from bacteria.

* Indicates board layers which consisted of 100 per cent bleached sulphite pulp. Other layers contained some ground wood.

The types of organisms predominating in milk container board made from virgin stock are heat-resistant forms characteristic of water, soil, or dust. While these species are clearly not disease-producing types, it is desirable from the standpoint of general sanitation and cleanliness to hold their total numbers to a minimum in paper to be used with perishable foods. Failure to control adequately this contamination may be considered an evidence of careless housekeeping.

Status Raised Through Cooperation.

Through the efforts of cooperating mills, the hygienic status of food container board has been raised to a point which renders it entirely suitable for direct contact with the most perishable and carefully processed foods. We believe that this movement toward the improved sanitary condition of paper products is economically sound and conducive to wider uses and more general acceptance of paper as an entirely hygienic and safe packaging material for the food industry.

PLAINTIFF'S EXHIBIT 18.

When Are Milk Containers and Equipment Clean and Sterile?*

The protection of milk from contamination from the time it is drawn from the cow's udder to the time it is delivered to the consumer is the most important problem connected with the production of clean, safe milk. The two most important items here involved are the pasteurization of the milk, and the sterilization of milk containers and equipment with which milk comes in contact. Considerable and, it is believed, adequate work has been done in the establishment of standards for the pasteurization of milk. However, comparatively little work has been done in the establishment of standards for the sterilization of milk containers and equipment. The committee is of the opinion

* Progress Report of the Committee on Milk Supply of the Public Health Engineering Section of the American Public Health Association and the Committee on Milk Sanitation of the Conference of State Sanitary Engineers, presented to the A.P.H.A. at the Sixty-second Annual Meeting in Indianapolis, Ind., October 9, 1933.

that there is need for additional work along these lines, and has undertaken to report upon the present status of this subject with a view of encouraging this type of work and bringing about (1) a better understanding of the subject, (2) the development of tests for determining efficiency, and (3) eventually a standardization of these methods.

Cleaning and sterilization are very frequently associated, but they are two distinct processes and should be treated as such. Efficiency of cleaning and of sterilization are matters of particular concern to health officials. The word "sterilization" as used here and as it has been used for years in dairy work means bactericidal treatment resulting in the devitalization of milk-borne pathogens and the further material reduction of all other bacteria.

It is commonly conceded that thorough cleaning is a necessary prerequisite to sterilization.

It has been, and probably will continue to be, the practice of milk control officials to determine cleanliness by physical examination. A simple visual examination is not sufficient. It is necessary to take things apart and to dig into the corners and crevices to determine whether they have been properly cleaned. Clean surfaces should not show a greasy film. The following examples will indicate the necessity for close examination. In a certain plant all readily visible parts of the equipment appeared clean but it was difficult to take the milk pump apart, indicating that the pump was not disassembled regularly. When it was taken apart it was found to be filthy. In another instance, a surface cooler was installed rather close to a wall and the visible side appeared to be very clean. However, a close examination of the surface against the wall revealed accumulation of dirt and milk solids, indicating that the surface had seldom, if ever, been washed. The man responsible for washing the equipment had apparently fooled the owner as well as the inspector.

The cleaning of the inner surfaces of pasteurizers presents a problem in itself. Many pasteurizers are coated with milk stone which is hard to remove. Wherever possible the walls of the pasteurizer should be cooled at the end of the holding period by circulating cold water through the coil or jacket to prevent a thin film of milk being exposed on a hot surface. When this is done, it is usually a simple matter to keep a pasteurizer clean by rinsing it thoroughly with cold water and washing it with ordinary washing powders. It is fairly certain that sur-

faces which cannot be easily cleaned will not always be properly cleared. Every effort should be made to see that equipment is so constructed, located, and operated as to make cleaning simple and easy.

The determination of the efficiency of sterilization presents a more difficult problem, as it is necessary to go beyond an ordinary physical examination of the sterilized surfaces. Heat treatment by steam, hot water, or moist hot air has been the most common means of sterilization in commercial use. Chemical treatment by solution containing chlorine is now used quite commonly. It has been fairly well established that the exposure of surfaces to certain degrees of heat for certain periods of time will accomplish sterilization, and also that exposure to certain concentrations of certain chemical for definite periods of time will also give satisfactory results. Attempts have been made with more or less success to determine the efficiency of sterilization by taking temperatures, by observing the length of time of application of such temperatures, and by testing the strength of chemical solutions and noting the time of application. The results have not been entirely satisfactory and it has not been easy to convince plant operators that these requirements must be met in order to get results.

More recently a more definite method of determining efficiency of sterilization has been brought into use. The supposedly sterilized container or piece of equipment is rinsed with an aliquot portion of sterilized water and standard plate counts are made to give an approximation of the number of colony-producing bacteria rinsed from the container or piece of equipment. This method has been used in a number of places and has made it easier to convince plant owners that they are not securing sterilization when they are confronted with unsatisfactory results of tests of this kind. As an illustration of the type of information that can be obtained, the following results of a series of tests made by a state health department are submitted. These results include the examination of bottles and cans from 526 plants in 179 municipalities during a period of about 2 years. Of 1,820 bottles examined 412, or 22.6 per cent, gave counts in excess of 10 per milliliter of capacity and 784, or 43.1 per cent, gave counts in excess of 1 per ml. Of 1,193 milk cans examined 527, or 44.2 per cent, gave counts in excess of 10 per ml. of capacity of such cans and

744, or 62.3 per cent, gave counts in excess of 1 per ml. capacity.

The International Association of Milk Dealers describes a method of this kind on pages 72 and 73 of its Laboratory Manual. It is understood that it is proposed to include this method in the next revision of Standard Methods of Milk Analysis. The standard adopted by the Milk Dealers Association for the satisfactory sterilization of bottles is that they shall give counts of not more than 2 colonies per c.c. capacity and for cans and covers not more than 100,000 colonies per 10-gal. can. The standards adopted by some health departments are more rigid. A standard adopted by one department provides for not more than 1 colony per ml. capacity of the containers, whether bottle or can.

The results given above indicate that 56.9 per cent 2566 of the bottles examined and 37.7 per cent of the cans examined complied with the latter standard. This would indicate that the standard is a reasonable one, inasmuch as the results given have been reported as a first attempt to check the efficiency of sterilization by this method in these plants. It is reasonable to expect that a re-survey would indicate a higher percentage compliance.

The committee is inclined to believe that the question as to whether this or any other standard of sterilization is too rigid or perhaps not rigid enough has not been answered satisfactorily and that the problem should be studied fundamentally.

Conclusions And Recommendations

It appears from the studies that:

1. At the present time the best method available for determining the efficiency of cleaning is a physical examination of the surfaces cleaned which should be made while the equipment is completely dismantled.

2. The most satisfactory way now available to determine the efficiency of sterilization is by rinsing the sterilized surfaces with sterile water and examining this water for bacteria by the Standard Plate Method.

3. In view of the possible inadequacy of present standards based on this method the committees recommend that intensive research work upon the problem be conducted in order that definite and practicable standards may be estab-

lished for the sterilization of milk containers and equipment.

Committee on Milk Supply,
American Public Health
Association

Committee on Milk Sanitation
Conference of State Sanitary
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PLAINTIFF'S EXHIBIT NO. 19.

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Second Conference on Sanitation of Paper Milk Containers
Reported by Dr. R. S. Breed, Chairman,
With a Supplementary Note on
Sanitary Inspection and Control at Pulp Paper Mills.

New York Agricultural Experiment Station
Geneva, New York, May 2, 1938.

As a result of rapid and interesting developments in the use of paper milk containers during the past year, it was considered advisable to hold a second conference to discuss problems of sanitation involved in the manufacture and use of single service paper containers for milk and cream. This meeting took place on May 2nd, 1938, at the New York Agricultural Experiment Station, Geneva, New York. A report of progress made during the year was given by Dr. J. R. Sanborn of the Geneva Experiment Station. Statements pertaining to various aspects of the work were made by Dr. John W. Rice of Bucknell University who is to be associated during the summer months with Dr. Sanborn in research work at the Geneva Station, Mr. J. C. Marquardt

* A member of the committee until he resigned as Chief Public Health Engineer of the State Board of Health of Missouri on May 10, 1933.

of the Geneva Station, Dr. F. W. Tanner of the University of Illinois, Urbana, Illinois, Mr. S. Abraham in charge of milk inspection work for New York City and Mr. W. D. Tiedeman, Chief of the Bureau of Sanitation of the New York State Department of Health.

About one hundred persons attended the conference, representing the following manufacturers of paper containers, American Can Company, Bensen Corporation, Dixie-Vortex Company, Ex-Cell-O Corporation, the Lily-Tulip Cup Corporation, Mono Service Company, the Reed Container Company and the Sealright Company; also manufacturers of paper board used in making these containers; makers of milk bottle caps, paper cups, secretaries of interested paper, pulp and container associations, milk dealers using paper containers, dairy machinery manufacturers, and representatives from federal, state and municipal health groups. The purpose of the conference was to encourage a free discussion between responsible health authorities and representatives of the industry, in order that both satisfactory and unsatisfactory practices in the handling and use of containers of this type would be revealed, and that plans could be made for correcting any undesirable conditions that have developed during the rapid introduction of these containers, particularly in the metropolitan area of New York City.

Health authorities were requested to state clearly what precautions they felt should be taken in the manufacture and use of containers of this type. Dr. Sanborn reported that through the development of a disintegration technic, he had been able to make between 500 and 1,000 bacteriological analyses of samples of paper board, the histories of which were known. All mills manufacturing board for milk containers use virgin mechanical or chemical pulp. Processes of manufacture when this work started were found to yield a board which gave an average bacterial count of less than 500 colonies per gram of disintegrated paper. In following the production of six mills in a routine way during the period from May 1937 to April 1938, it was found that two of the mills were able to keep nearly all counts under 100 colonies per gram, and samples were often practically bacteria free. There is some indication that board made during the spring and fall may show higher counts due to the fact that control of microorganisms in water supplies and in mill systems may be less effective then than at other times in the year. However,

these data are not yet sufficient to reveal what can be accomplished when the various mills give attention to the matter of producing consistently a low count paper board. Dr. Sanborn stated that some mills are not in a position to guarantee a paper board that will regularly yield bacteriological counts of less than 500 per gram.

The persons present at the May second conference appreciated the desirability of holding to a minimum all human contact with paper and containers until the finished container filled with milk reaches the consumer. Various reports indicated that definite progress is being made along these lines. It was evident that manufacturers realize the importance of handling the paper, paper blanks, and finished containers as aseptically as possible. They also realize the value of packing pre-fabricated containers in such a way that the milk dealer who receives them will regard the containers as sterilized packages. Careless handling and misuse of paper blanks and fabricated containers in milk bottling plants were reported by the health authorities present. Suggestions were made pertaining to the sterilization of containers just before filling with milk. The use of toxic substances of any sort in the paper, moisture-proofing materials, adhesives, or other materials used in the manufacture of the container could not be allowed under any circumstances.

The conference again brought out differences in viewpoint among public health authorities as to methods of achieving the highest possible sanitary quality in both prefabricated containers and those that are filled with milk immediately after paraffining. There are so many mechanical and sanitary difficulties involved in providing sterile containers in milk plants that health authorities are requiring that more careful attention be paid to sanitary conditions involving the storage, handling, and filling of containers in the average milk plant.

As a result of suggestions that have been received during the year, mimeographed sheets were prepared suggesting amendments to the Principles of Sanitation which were drawn up at the previous conference held on July 12, 1937.¹ Preliminary drafts of a model ordinance for cities were distributed for discussion.

Those interested may secure copies of the various publications and mimeographed sheets that were available at

1. Report of Proceedings published in *The Milk Sanitation*, 6, No. 9, September 1937.

the meeting, on application to the Geneva Experiment Station.

Supplementary Note on Sanitary Inspection and Control at Pulp and Paper Mills.

In response to a general request from health groups represented at the second conference on paper milk containers that some sort of an official inspection be established of mills making board for food containers, the technical directors from a number of interested mills met at the New York State Agricultural Experiment Station on May 16, 1938, to consider a program for meeting sanitary requirements. The paper manufacturers present requested sanitary inspection of their mills and authorized Dr. R. S. Breed and Dr. J. R. Sanborn to organize and conduct a preliminary program of inspection and control. A group of about a dozen mills have requested that Dr. Sanborn undertake a preliminary inspection to determine how adequately they are prepared to meet the type of regulation that was suggested at the conference of May 2, 1938. The suggestions covered general sanitation at these pulp and paper mills, including control measures that would keep persons suffering from contagious diseases from contact with paper-making operations; proper purification of water supplies; and handling of pulp and paper so as to maintain low bacterial counts in the pulp before it reaches the drier rolls and in the finished product.

The purpose of these preliminary inspections is to insure the production of paper that is sufficiently bacteria-free and clean to meet the rigid requirements necessary for the packaging of perishable foods. These procedures, incidentally, are also helpful in general mill operation and production. Inspections are based upon a guide for a systematic sanitary survey, tentatively approved by the pulp and paper and public health groups.

In several cases, the present summer inspection will follow up previous inspections made last year. Through the cooperation of mills that have had the opportunity to make improvements and corrections, it has been possible for this Station to secure complete records of the sanitary condition of milk container board production. Satisfactory bacteriological analysis of many samples of board has been made possible through the development at this Station of

a disintegration method previously described.² The technic for determining the bacterial content of container board consists of repulping the board in sterile water by means of a sterilized beating device (Fig. 1) and plating the resulting pulp suspension according to standard bacteriological procedures. Various cooperating laboratories are investigating the bacteriological contamination of paper board, using disintegration procedures. The results obtained are showing interesting correlations and considerable agreement.

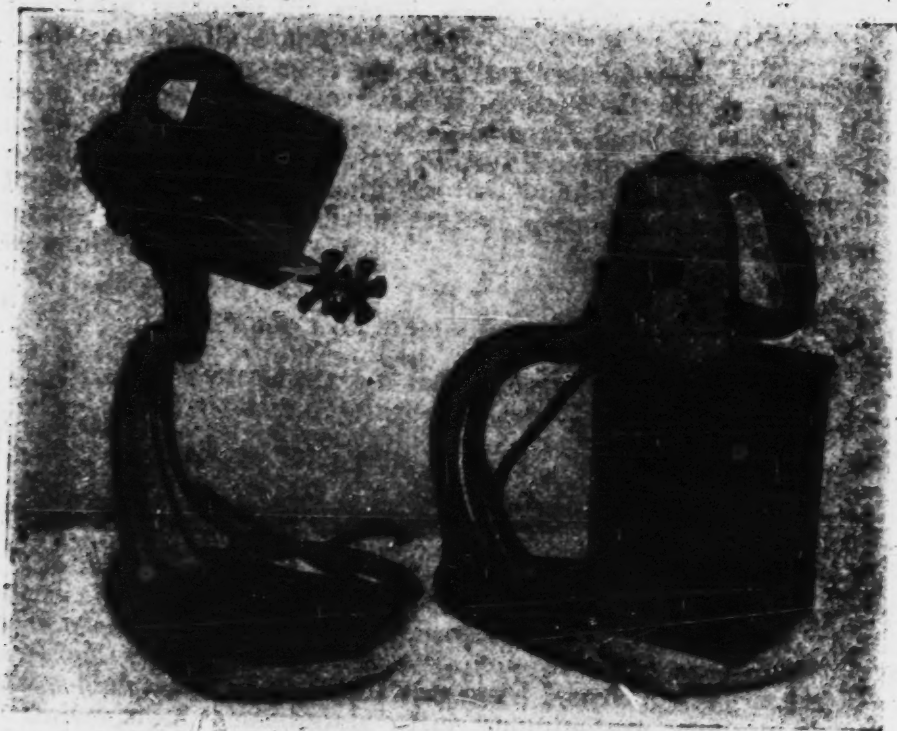


Figure 1—Apparatus for Paper Board Disintegration

The entire procedure of paper disintegration for bacteriological examination is undergoing intensive investigation and standardization, so that conditions of sample collection and testing may be uniform at all laboratories. In disintegration processes, we are working toward the utilization of stainless steel equipment throughout. For example, in the case of the method previously described, sterile stainless steel covers for stainless steel churning jars have replaced the sterile, single service, paper board covers originally employed.

Pulp and paper mills are deriving considerable benefit from a knowledge of the bacterial content of various runs of board. This information enables a mill to meet sanitary requirements and to employ control measures effectively. Paper container manufacturers and public health laboratories are also finding disintegration methods useful in determining quality.

Paper Containers for Milk

Principles of Sanitation to be Observed in Their Manufacture and Use.*

Item I.

Paper Container Stock.

Containers shall be made from virgin chemical or mechanical pulp. Virgin pulp is pulp that has not previously been used for commercial purposes. Board prior to moisture-roofing shall not at any time have a count exceeding 500 colonies per gram of disintegrated board.**

Unless used immediately after manufacture, container board shall be wrapped, sealed and protected until used. When used, the outside sheet on rolls or the top and bottom sheets of sheeted stock shall be discarded in all cases.

* As revised at a Conference held at Geneva, N. Y., May 2, 1938. Originally prepared by J. R. Sanborn, M. W. Yale and R. S. Breed.

** Further research has shown that this is a feasible and rather lenient standard. Certainly, board should not give a count of more than 100 colonies per gram where milk or milk products come in direct contact with uncoated papers.

Public Health Reasons.

(a) The use of stock which has previously been used for commercial purposes (secondary stock, is not consistent with standards of food quality. Even if secondary pulp is completely sterilized during recovery, its miscellaneous content of foreign matter and dirt render it unsuitable for use in milk container stock.

(b) Contamination of rolls of paper, or sheeted stock occurs most readily at ends or on top or bottom sheets, hence the advisability of complete wrapping protection and sealing of these rolls or packs. Discarding the outside sheets of rolls or top and bottom sheets of sheeted stock, is a desirable precaution.

Satisfactory Compliance: For the above reasons, this item shall be deemed to have been satisfied when:

(a) Mills produce container board from virgin pulps.

(b) Mills require personal cleanliness among operators and consistently practice plant sanitation for the purpose of producing board low in dirt count and free from slime spots.

(c) Rolls or sheeted stock are wrapped immediately after manufacture in strong, clean wrappers, or utilized before there is opportunity for contamination from dust, dirt, or handling.

Item 2.**Process of Conversion—Where Stock Is Made Directly Into Containers.**

When container board reaches conversion plant, it shall be considered that this paper has received a bactericidal treatment. All stock and containers shall be handled mechanically so far as possible. Following fabrication, until final sealing in milk plant, container surfaces with which milk or milk products come in contact shall be protected from contamination. This shall be done through the use of mechanical equipment, careful handling, sealed sanitary shipping cases, or a closure for each container.

Public Health Reasons: Human handling of container board increases opportunity for contamination which is reflected in the numbers and types of microorganisms pres-

ent in waxed containers. If stock in conversion and milk plants is not protected from contamination, the value of germicidal treatment and sanitary precautions at pulp and paper mills will be partly or entirely nullified. Moisture-proof treatment may not completely sterilize containers. The chief purpose of the latter treatment is to render containers uniformly non-absorbent. Fortunately the same process may act as a secondary line of defense against contamination with microorganisms.

Satisfactory Compliance: This item shall be deemed to have been satisfied when:

(a) Paper direct from pulp and paper mill is unwrapped in conversion plant close to mechanically-fed machine and sheets exposed to unavoidable manual contact are discarded.

(b) Entire conversion process, methods of packing and shipping are conducted in such manner as to protect container from contamination, particularly human contact contamination.

Item 3

Process of Conversion Where Container is Preformed in a Collapsed or Nested State Before Final Sealing

Throughout the processes of printing, folding, sealing, adhesive application, or packing prior to shipment to milk plant, all stock and containers shall, as far as feasible, be handled mechanically and be suitably wrapped or packaged before shipping.

Packaged container stock at milk plant shall be kept in a clean, dry place and opened only for immediate use. Where it is necessary to form or manipulate containers, all surfaces with which milk or milk products may come in contact, shall be protected from human handling.

Public Health Reasons: It is important that, during intermediate stages in conversion processes, manual contacts with container board be reduced to a minimum. In order to guard against promiscuous handling and exposure to dirt, it is advisable to keep board not in actual use, packaged and sealed. Fabrication, printing and sealing of containers should be conducted in such manner as to protect them from contamination.

Satisfactory Compliance: This item shall be deemed to have been satisfied when:

(a) Plants for printing, folding, sealing, and packing containers or other operations prior to delivery to milk plants, handle container board mechanically so far as possible and, at the conclusion of the operations, package the stock in suitable wrappers, cartons, or tubes.

(b) Milk plants protect packaged containers and contents from injury or abuse and complete fabrication, filling, and sealing of containers in such manner as to protect them from contamination.

Item 4

Moisture-Proofing

Moisture-proofing of containers shall be accomplished by means of fully refined paraffin wax or other suitable materials which are odorless, tasteless and non-toxic. The operation of paraffining machines shall be supervised by competent persons.

Public Health Reasons: Fully refined paraffin is the only grade acceptable to and consistent with food uses. It is of fundamental importance that containers be rendered completely non-absorbent by machines that operate properly and that the moisture-proofing material be odorless, tasteless and non-poisonous.

Satisfactory compliance. This item shall be deemed to have been satisfied if the purpose and quality of the treatment described above are strictly maintained.

Item 5

Adhesives

Container board should be sealed by means of non-fermentable adhesives, preferably synthetic thermoplastic materials. Adhesives having starchy or casein bases must resist decomposition, dissolution, and leaching, and not contaminate the contents of containers with microorganisms.

Public Health Reasons: Adhesives are as a class notoriously susceptible to decomposition by microor-

ganisms. Some of these highly perishable materials, such as animal glue, are obviously not suitable for use in food containers. A number of adhesives, represented by products employing starchy or casein bases, while ordinarily fermentable, may be produced in forms or grades which are non-odorous, resistant to moisture, and unsuitable for the development of microorganisms.

Satisfactory Compliance: In accord with the above account, this item shall be deemed to have been satisfied if:

(a) Rapidly drying adhesives having starchy or casein bases which resist fermentation are used to form liquid-tight joints; these adhesives do not contaminate containers with microorganisms.

(b) Adhesives employed be of synthetic thermoplastic types.

Item 6

Germicides

Germicidal and bacteriostatic agents that are toxic to human beings or that affect milk in any way, as in taste, odor or nutritional qualities shall not be used in board, adhesives, or moisture-proofing materials for milk containers.

Public Health Reasons: Substances introduced into materials of which containers are composed, which might conceivably exert preservative or antiseptic effects may affect the nutritional value of milk and be instrumental in producing off-flavors or odors. In some cases injurious effects on human beings from the use of such antiseptics have been demonstrated. It is necessary that substances of this class for use with containers be free of any toxic associations.

Satisfactory Compliance: This item shall be deemed to have been satisfied when:

(a) No germicidal or bacteriostatic agents are used unless they have been shown to be non-toxic and without effect on milk through the use of physical, chemical and biological tests, supported by clinical evidence.

Item 7

Handling of Paraffin

Paraffin in the solid state shall be shipped and stored in cool, clean, dry places, protected from dirt and isolated from odorous materials. Paraffin in the liquid state shall be kept, at all times, in clean and sanitary containers. Waxing machines and baths shall be cleaned at regular intervals unless cleaning devices such as continuous filtration, are employed. In no case shall freshly prepared, new paraffin be introduced into used paraffin which has become discolored, oxidized or dirty. Odorous substances such as ordinary kerosene and gasoline shall not be used on or about conversion machines.

Public Helath Reasons: Paraffin absorbs odors and for the sake of milk quality it is advisable that special storage facilities be provided, which will also protect wax from promiscuous handling and exposure to dirt.

Due to the susceptibility of heated paraffin to oxidation, a well-regulated program of paraffin utilization should be followed to avoid over-heating, prevent contamination of new paraffin with partly oxidized wax and to eliminate the possibility of coating or impregnation of containers with discolored, dirty or oxidized wax.

Satisfactory Compliance: This item shall be deemed to have been satisfied if:

(a) Slabs of paraffin are shipped and stored in clean, cool, dry places and removed from storage only as required for coating or impregnation bath.

(b). Paraffin for coating, impregnation or storage is held at temperatures and for periods of time which will not impart flavors or odors to paraffin or milk.

(c) Molten paraffin is held in clean sanitary containers.

(d) Paraffin bath or tank is cleaned by continuous filtration or at regular intervals depending on such evidences of deterioration as discoloration and presence of dirt or fiber.

(e) The possibility of mixing new paraffin with a product that is unfit for use is avoided.

Item 8

Shipping Cases and Storage for Containers*

Cases for shipping empty containers shall be constructed of board or wrapping designed to adequately protect containers from injury or abuse due to tearing or breaking. Containers shall be stored in sealed, dry, unbroken cases, in a dry, vermin-proof location. Partly empty shipping cases of prefabricated containers shall be resealed, rewrapped, or otherwise protected from contamination during storage. Except during filling operations, empty containers shall not be exposed at any time.

Public Health Reasons: Damage to shipping cases frequently exposes containers to conditions which may result in serious contamination from dirt, wetting and human contact.

Satisfactory Compliance: This item shall be deemed to have been satisfied when:

(a) Shipping cases are well enough constructed and sealed to resist the handling they receive in transit without injury.

(b) Containers are stored at all times in sealed cases in places having dry floors and where there is no washing down of the floors while cartons are in storage.

Item 9

Cartons for Shipping Filled Containers

Only clean cartons shall be used for shipping filled containers. Returned carriers shall be handled or stored so as not to become wet, dirty, or damaged before again being used.

Public Health Reasons: The re-use of shipping cartons may easily become a menace to milk quality and health. The abuse of these boxes arises from lack of care in handling and storing returned cartons. They may be carelessly thrown aside, allowed to become wet, dirty and mildewed. The packing of new containers of fresh milk

*Regulations governing construction of milk plants so as to limit the operations of opening shipping cases, storing, and filling the containers to definite rooms, should be adopted where feasible.

in abused cartons-is a practice which should not be allowed as it may cause addition of organisms and dirt.

Satisfactory Compliance: This item shall be deemed to have been satisfied when:

(a) New paper cartons are used for single delivery to retailer.

(b) Milk plant has adequate and dry storage facilities for returned cartons and uses only neat and clean, uninjured boxes.

Item 10

Examination of Containers

By any method of manufacture, treatment, or handling employed, the final test of sterility and cleanliness shall be freedom from bacteria, chemical reagents, and other foreign matter.

Public Health Reasons: Consideration of possible sources of contamination during container manufacture, renders it advisable to reduce to a minimum the number of organisms present. While the likelihood of contamination by disease organisms is slight, bacteriological control of plant sanitation is necessary.

Satisfactory Compliance: This item shall be deemed to have been satisfied when:

(a) The average bacterial content of containers does not exceed 50 colonies per container.

Item 11

Quarantined Residences

The delivery of milk or milk products to and the collection of milk and milk-products containers from quarantined residences shall be subject to the special requirements of the health officer. It is recommended and urged that single service containers be used for retail delivery of milk and milk products under these circumstances. In case of wholesale delivery, to hospitals, etc., caring for infectious diseases carrier cartons as well as individual containers should be destroyed.

Sanitation of Paper Containers and Fibre Products

One of the weak links in the sanitary handling of dairy products has been the condition of bottle caps, cover hoods, milk containers, and cartons for ice cream, butter, and cheese. Some of these come into immediate contact with the food product, and others purport to protect it from contamination. In spite of the great care and expense involved in securing milk from healthy cows, and in pasteurizing it under scientific control by operators free from communicable disease, it has been common practice to use milk caps of uncertain sanitary history, to say the least. Pouring lips of glass milk bottles are protected by paper devices of one kind or another whose sanitary history is nondescript. The same considerations obtain in the increasing use of fibre containers for ice cream, both retail and wholesale.

It is common knowledge that paper and other fibre products have not been manufactured under such excellent sanitary conditions as usually obtain in food handling operations. Direct contact of high quality dairy products with containers of high, low, and indifferent degrees of cleanliness is as incongruous as the hand capping of milk bottles or the dispensing of ice cream under the faulty conditions of sanitation which obtains at many fountains. The effects of expensive and careful processing are weakened or possibly nullified by such practices.

These conditions are being studied and remedies devised by the extensive researches now being conducted at the New York State Agricultural Experiment Station at Geneva. Methods have been reported for determining the bacterial content of fibre products. Sanitary standards are being developed to guide the operations of the mills. Suggested regulations have been drawn up and offered as a tentative control procedure to protect the public and the industry from hasty and ill-considered official regulatory measures. An educational program has been inaugurated to demonstrate to the mills what constitutes sanitation according to the standards of public health officials and of the dairy industry. Pulp and paper mills are being inspected and rated for sanitary conditions and methods. A list of those having approved ratings will be published later when all have had an opportunity to make necessary improvements and corrections. This is a valuable contribution to dairy technology and sanitation.

Some mills are now producing high quality products. Their operations are open for sanitary inspection. Others are not operating on this basis. Why are they not? One answer is not new; they have a market for their products which are being produced as heretofore, and as yet are not prepared to go to the expense necessary to make their operations comply with the modern conceptions of sanitation. In some cases, they have not realized that conditions which may be satisfactory for routine paper production will not always meet sanitary standards which must be maintained for food and dairy containers.

The health officer, the conscientious dealer, and the consuming public have a right to know what makes of paper wrappers and containers, commensurate in sanitary quality to milk and ice cream, are available. Obviously, reliance cannot be placed on the claims of salesmen. Inspection by an impartial agency, which is authorized to certify to compliance, and to publish the names of such brands, would meet the need. Firms which are now producing high quality products should be known by this fact, and not be made to wait for some indefinite time in the future when the laggards can be listed at the same time as the pioneers.

J. H. S.

Plaintiff's Exhibit No. 20 omitted at this point as it appears as a part of Plaintiff's Exhibit No. 4.

2575

PLAINTIFF'S EXHIBIT NO. 21.

Proposed Standards for Paper Milk Containers.

J. R. Sanborn

New York Agricultural Experiment Station,

Geneva, New York.

Sanitary Requirements of Food Container Board.

There is no reason why a paper container made from clean, sound, pulp wood according to methods consistent with food standards should not be hygienically suitable for perishable foods. Investigation has demonstrated the feasibility and effectiveness of this means of packaging milk.

Commercial mill practices in manufacturing pulp and paper and the condition of finished products are often not sufficiently sanitary to meet with the approval of food sanitarians and public health officials. The paper maker needs a sanitary technique comparable to the procedures employed for edible products. The intimate associations of cellulose material with food and household uses admit of no compromise with cleanliness and microbiological control.

Fear of increased operative costs and hesitancy to make changes from long established practices intensify the opposition to improved sanitary methods on the part of some pulp and paper mills. On the other hand, several producers of food wrappers and container board already exercise effective sanitary control which enables them to manufacture a clean, high quality product practically free from micro-organisms. By insuring purity of process water, cleanliness of mill systems and operations, and adequate protection of the finished product, these plants are setting a standard of quality which indicates the suitability of 2576 and safety of properly made paper for the packaging of perishable and easily contaminated food products such as milk.

Consistently high standards of quality in paper mill operations and possible approval by public health officials will depend on constant adherence to a program of microbiological control. The industry has suggested that sanitary inspections be made of plants manufacturing milk container board. Apparently the only way this can be done is by federal supervision or voluntary action on the part of pulp and paper mills or conversion plants. Many purchasers and consumers of paper food containers are sensitive to the bacterial counts of contained foods and to the presence of undesirable organisms. With all the cleanliness and care used in preparing and processing foods, it is obviously inconsistent to package these foods in unsuitable and contaminated paper.

Sanitary Quality of Paper Milk Containers.

An institute has been established at the New York State Agricultural Experiment Station for the purpose of securing fundamental information on the sanitary condition of paper for use in contact with such perishable foods as milk

and milk products, and establishing standards for this paper and its fabricated forms which will provide health laboratories with criteria for estimating sanitary quality in paper containers.

During this investigation consideration has been given to certain principles of sanitation which should be observed in the manufacture and use of paper milk containers. The following items present in concise form some of the factors involved:

1. Use of virgin pulp only.
- 2577 2. Pure process water and strict microbiological control at pulp and paper mills.
3. Suitable protection and wrapping of finished board.
4. Mechanical handling of board and containers at conversion factories and milk plants.
5. Protection of board, adhesives, moisture-proofing materials, and finished containers from careless exposure to human contact, contamination, dirt, flushing water, or insects.
6. Detailed knowledge and careful selection of all materials composing the container to avoid the possibility of incorporating substances having germicidal or bacteriostatic effects, the use of which is prohibited unless they have been shown to be nontoxic to human beings and without effect on milk.

The bacteriological condition of the original container board usually influences directly the bacterial counts of finished containers. Strictly sanitary methods of handling, conveying, and storing good quality board aid in preserving its sanitary condition. Health laboratories are therefore primarily interested in the hygienic state of the original container board as it is received by conversion factories or milk plants.

Municipal Regulations and Control.

Critical examination of food wrapper and container board will reveal information relative to the care and sanitary precautions taken by pulp and paper mills in the manufacture of these important grades of paper. Health laboratories may confirm by identification of fibers the nature of the pulp used; calculate the dirt content according to a method of numerical estimation suggested by the pulp

Testing Committee of the Technical Association of the Pulp and Paper Industry; examine slime spots for 2578 evidences of slime-forming organisms, growth fragments, or characteristic products of slime production.

Appreciable quantities of dirt and foreign matter may be introduced into new paper and board during their manufacture. Particles of metal, pipe scale, sand, and carbonaceous matter sometimes occur as well as various foreign fibers and organic residues, the presence of which is occasionally associated with unhygienic or careless practices.

Accumulations of microbial growth or slimes in pipe lines, chests and tanks are frequently dislodged and carried along by pulp streams to paper machines where considerable operative difficulties may result. Slimes are caused by bacteria, filamentous fungi, or yeastlike organisms, representative species falling under the genera *Aerobacter*, *Achromobacter*, *Flavobacterium*, *Pseudomonas*, *Bacillus*, *Penicillium*, *Mucor*, *Aspergillus*, *Cladosporium*, *Trichoderma*, *Oidium*, *Monilia*. The presence of slime spots in samples of paper suggests inadequate control over the development of micro-organisms in pulp and paper mills. Many slime-forming species are unusually aggressive and persistent, controllable only by specific remedial measures and consistent application of programs of slime eradication and prevention. Only those mills which successfully control micro-organisms within their systems should be considered by health officials for an approved sanitary status in the manufacture of food wrappers and containers.

It is also possible to grade paper products such as milk container board according to their bacterial content based on the number of colonies developing on standard agar per 2579 gram of disintegrated stock. Disintegration of container board may be accomplished aseptically by means of special beaters, shredders, grinders, or agitators. When properly carried out the process is completed in a relatively short time. Ten cc. portions of the pulp suspensions containing ten grams of board to a liter of sterile water, are plated out on standard agar in both 100 mm. and 150 mm. petri dishes. In the case of the regular size plates, 2 cc. amounts of suspension are introduced into each dish, thereby facilitating the counting of colonies from board containing relatively large numbers of organisms. The large size plates, accommodating the entire 10 cc. portion of pulp suspension, furnish the more useful

method for the examination of improved milk container stock.

Samples of container board taken at any state prior to moisture-proofing should not have a count exceeding 500 colonies per gram of disintegrated board. Certain pulp and paper mills which are able to maintain effective control over the development of micro-organisms within their systems, manufacture a product having counts of less than 100 per gram. Ten cc. rinses of paraffined containers made from low count board are often practically free from bacteria. On the other hand, containers produced from board which approaches the maximum count of 500 may yield 100 colonies per container. Average plate counts for all types of paper milk containers are usually less than 50 per container, which is standard for the Baltimore regulation discussed below.

Rinse tests on fabricated containers are made in conformity with the latest standard methods recommended by the American Public Health Association. Paper containers are rinsed with 10 cc. of sterile water all of which is plated out on standard agar, by distributing the rinse among three regular size plates or introducing the entire quantity into a 150 mm. dish. Plates are incubated at 37° C., and counts are made at the end of 48 and 72 hours. It may be considered that present standards for paper containers should be in accord with those suggested by the American Public Health Association for glass bottles. Sanitary conditions in pulp and paper mills, container manufacturing plants and dairies usually enable paper containers to meet a much stricter standard than those ordinarily considered for glass.

Isolated attempts are being made by control officials to regulate the handling and sale of milk and milk products packaged in paper. While these actions are based on information available at the time of formulation, recent findings indicate that the data are usually inadequate. The regulation adopted by the Baltimore City Health Department is deserving of serious study. In accord with this regulation it will be generally agreed that all paper, cardboard or other non-glass containers should be approved by the Commissioner of Health and conform to certain general rules regarding labelling and designation. Item 4 of the more technical portion of the regulation states:

“The paper blanks or non-paraffined containers shall be

received by the milk plant in tightly closed packages or cartons and shall be manufactured from the best obtainable white spruce pulp or other material approved by the Commissioner of Health."

In the light of the results of recent investigations, this item may be effectively amended according to the suggestion given below:

"Container board in rolls, sheeted stock or blanks shall be received by conversion or milk plants suitably 2581 wrapped and sealed, and shall, until used, be kept unopened, in a clean, dry place."

"Only virgin pulp shall be used in manufacturing milk container board, which is low in dirt count, free from slime spots and has a bacterial count which does not, at any time, exceed 500 colonies per gram of disintegrated board."

Item 5 of the Baltimore regulations makes the following statement:

"The container, if glued, shall be glued with material made from a base of soybean, tapioca, or other produced approved by the Commissioner of Health."

The suggested revision of this item would be as follows:

"The gluing of the container shall be accomplished with non-fermentable adhesives of synthetic, thermoplastic, varieties, or such types having vegetable or casein bases as produce rapidly-drying films which resist dissolution, decomposition and leaching."

Item 6 of the Baltimore ruling is as follows:

"The container, if it be one which requires paraffining, shall be paraffined in the milk plant where it is filled with milk or milk products; and shall be mechanically conveyed from the paraffining apparatus to the filling and sealing equipment; and the paraffining, conveying, filling and sealing of all containers shall be so accomplished as to prevent any possible hand or other contamination."

In view of the fact that paraffining may not completely sterilize containers and that premade containers may be as effectively protected from contamination as those that are filled with the milk immediately after paraffining, both types of containers should be permitted. The condition of paper milk containers in actual use at milk plants is the most reliable index to their sanitary quality. Wording 2582 such as the following might be substituted.

"Moisture-proofing of containers shall be accomplished by means of fully refined paraffin wax or other

suitable materials which are odorless, tasteless, and non-toxic. The operation of paraffining machines shall be supervised by competent mechanics.

"All stock and containers shall be handled mechanically so far as possible and be paraffined, conveyed, filled and sealed so as to prevent contamination from manual contact, dirt, and insects."

This form of amended regulation would seem to provide sufficient restriction and sanitary control without shutting out high quality containers which may reach milk plants already paraffined. It has been demonstrated that it is entirely possible to make paper wrappers and containers which are suitable for milk and other perishable foods. As manufacturers continue to progress in sanitary methods of production and handling, it is probable that standards and specifications will become more stringent.

2583

PLAINTIFF'S EXHIBIT NO. 22.**Sanitary Problems in Connection With Paper Containers for Milk.**

J. R. Sanborn,
New York Agricultural Experiment Station,
Geneva, New York.

Recent Developments in the Single-Service Paper Container.

Paper wrappers and containers used in direct contact with perishable foods are undergoing critical sanitary investigation. Various research groups have long been appreciative of the need for the establishment of sanitary standards for paper packaging materials. The coming of the paper container for milk provided the impetus necessary to bring about fundamental improvements in the sanitary quality of container-board. With the co-operation of pulp and paper mills, conversion factories and milk plants, a sanitary technique has been adopted which has already resulted in significant improvements in the hygienic condition of food paper containers.

While developments in the paper milk container industry during the past two years have been phenomenal, its history in this country goes back many years. In-

vestigations reveal the extensive background of experience and research on which manufacturers are able to base advances in paper container engineering and sanitation.

New York City has known this container for approximately ten years. Since 1933 the amount of milk sold in paper containers has steadily increased. Besides the cities of the New York area and New Jersey, paper containers for milk are being used in Philadelphia, Pa.,

Baltimore, Md., Cleveland, Ohio, Detroit, Mich., St. Louis, Mo., Seattle, Wash., Los Angeles, Cal., Toledo, Ohio, Atlanta, Ga., Dayton, Ohio, Santa Barbara, Cal., San Francisco, Cal., Pittsburgh, Pa., Phoenix, Ariz., Wichita, Kansas, Omaha, Nebraska, and Dallas, Texas.

Last Spring the Department of Health in New York City reported that about one-fourth of the packaged milk and cream supply of that City was furnished in paper. A single milk plant, which last March turned out 160,000 to 180,000 paper packages of milk daily had increased its output in June to over 250,000 packages. Plants that have used both paper containers and glass bottles state that there is every indication that milk packaged in paper is, in all respects, the equal of glass bottled milk.

Public health agencies are availing themselves more and more of the benefits which may be derived from the use of single service containers. In cases of infectious disease, delivery of milk in paper containers is an important factor in control. There are indications that this means of distributing milk may decrease incidence of contagious disease during epidemics. The use of single service containers for milk by quarantined residences, hospitals, and other institutions caring for infectious diseases, is recommended and urged.

The possibilities for greater sanitary usefulness of paper packaging for milk and other perishable foods are receiving the detailed consideration of public health authorities. Several pulp and paper mills are endeavoring to meet certain prescribed sanitary requirements and to achieve as closely as possible a bacteria-free board for milk containers. Their success in the attainment of this goal will depend upon the application of a program of strict microbiological control based on the utilization of pure process water, specific bactericidal treatments, practical mill sanitation, and proper protec-

tion of finished paper. Following these procedures, some mills are manufacturing, with reasonable consistency, milk container board which yields low bacterial counts. Other plants, engaged in solving specific problems are making definite progress toward effective microbiological control.

Tentative and Proposed Standards for Regulation and Control

In view of the fact that the sanitary condition of paper board is of fundamental importance in the manufacture of sanitary containers, definite specifications are being worked out for milk container board. It is essential that only virgin pulp from clean, sound wood be employed. Under careful conditions of manufacture, board may be produced which contains considerably less than 500 colonies per gram of disintegrated stock. This count has been suggested as a reasonable maximum and until the effects on board counts of seasonal variations in water supplies, temperatures and microbiological development have been determined, we feel it to be inadvisable to specify a more exacting standard. Meanwhile, mills producing this board are doing their utmost to maintain the lowest possible counts. Several of them are making board which yields consistently less than 250 colonies per gram. In a few cases, where unusually careful attention is paid to microbiological control, counts may be periodically less than 100, even approaching the bacteria-free state. The results shown below indicate the trend of the board investigation at four representative mills.

2586 TABLE I.—SUMMARY OF RESULTS ON BOARD TESTS.

Tests	MILL A	MILL B	MILL C	MILL D
Number of Tests.....	24	25	49	28
Number Counts under 100.....	8	3	34	20
Number Counts under 200.....	17	7	45	24
Counts under 250 in Per cent.....	83	40	96	94

A detailed study is also being made of the type of micro-organisms found in milk container board. The predominating species are typically heat-resistant, including spore-forming bacteria, micrococci, actinomyces, and various groups of fungi. The origin and characteristics of

these species are worth consideration in their relation to the quality of the milk that is to be placed in the containers.

The action of heat resistant organisms on milk is well known, and in view of the fact, however, that bacteria normally found in milk tend to outgrow nearly all of the paper container types, casual contamination from the container does not appear to be significant.

It has been conclusively demonstrated that low count board, properly handled produces containers having low bacterial counts. Thus far there have been considerable variations in board counts and in results of rinse tests made from fabricated containers. On the other hand, while occasional rinses may reveal high numbers, the average of many tests shows that all of the generally used types of paper milk containers yield counts of less than 50 per container. These figures are, of course, much

less than those suggested by the American Public Health Association in the Standard Methods of Milk

Analysis report for glass bottles. Low rinse counts on paper containers known to be made from sanitary board, are indicative of the bacteriological condition of containers. Without intimate knowledge and control of boards used, results of rinse tests may be inconsistent and misleading. Recent findings indicate that there is now far less variation in board counts among mills exercising careful microbiological control than occurred prior to the adoption of the present program.

As far as moisture-proofing treatments are concerned, these procedures may not completely sterilize containers. Their chief purpose is to render paper containers uniformly non-absorbent. Fully refined paraffin fulfills satisfactorily certain general sanitary criteria but greater uniformity and efficiency should be obtained in waxing procedures. An efficient paraffining process also acts as a secondary line of defense against contamination with micro-organisms.

The use of germicidal and bacteriostatic agents in container materials, that are toxic to human being or that effect milk in any way, should be strictly prohibited. Substances which might conceivably exert germicidal or bacteriostatic activity must not be used unless they have been shown to be nontoxic and without effect on milk, through the use of physical, chemical, and biological tests, supported by clinical evidence.

Sanitary Production of Milk Container Board.

Sanitation in paper milk containers invariably goes back to the original board. Specifications for board should include, in addition to the exclusive use of virgin 2588 pulp, low bacterial counts, low dirt counts, and absence of slime spots. Slimes are accumulated microbiological growths occurring in pulp and paper mill systems. These organisms are usually heat-resistant, and hence, may persist through paper-making operations. The slime growths which build up are frequent causes of discolorations, objectionable odors and spotting in paper. The elimination of slime at its source by suitable bactericidal treatments is a necessary prerequisite to the production of board having satisfactory sanitary quality for milk containers. Some mills are taking voluntary action in this matter, requesting periodic inspections and plant tests as aids to consistent sanitary practices and to the establishment of effective programs of microbiological control.

The following table presents a series of typical board counts obtained during recent tests using agar. These have been arranged, for the sake of clarity, in the order of decreasing magnitude. Incubation was at 32° C. for 3 days.

TABLE II.—BACTERIAL COLONIES PER GRAM OF DISINTEGRATED BOARD.

Tests	MILL A	MILL B	MILL C	MILL D
1	242	490	108	143
2	187	346	77	112
3	171	318	73	100
4	163	307	49	96
5	138	262	43	90
6	129	210	32	75
7	119	209	22	54
8	104	172	21	54
9	101	167	11	49
10	86	107	7	43
11	76	97	0	32
12	69	92	00	11

Eighty per cent of the tests in a series of 137 examinations representing seven pulp and paper mills, yielded counts of less than 250 colonies per gram of board.

2589 While the scope of this work has, thus far, been somewhat limited, later reports will provide more complete information.

Sanitary Production of Paper Milk Containers.

Sanitarily produced milk container board, properly handled, determines the sanitary condition of fabricated containers. Proper handling of uncontaminated paper includes:

1. Suitable protection of finished paper at mill with sanitary wrappings and sealing.

2. Discarding of top and bottom, or outside sheets at converting plants and mechanical handling so far as possible of stock and containers.

3. Prevention of contamination from manual contact, dirt, flushing water, and insects during container formation, moisture-proofing, conveying, filling, and sealing.

4. Adequate, dry, sanitary storage for paper products at milk plants and storage rooms.

The Institute of Research which has been established at the New York State Agricultural Experiment Station, maintains close contact with paper milk container sanitation at pulp and paper mills, converting factories, and milk plants, working in co-operation with manufacturers and public health officials toward the attainment and maintenance of high sanitary standards.

2590 PLAINTIFF'S EXHIBIT NO. 23.

February 18, 1939.

Mr. J. M. S. Ewing,
Manager of Sales,
Cherry River Paper Company,
Pennsylvania Building,
Philadelphia, Pa.

Dear Mr. Ewing:

I submit, herewith, a report of the bacteriological analysis of milk container board, samples No. 3389-159, received from your mill on February 14, 1939.

This sample was collected by members of the mill laboratory under directions given by the Geneva laboratory. Standard nutrient agar was used in plating, and incubation was carried at 37° C. for 48 hours.

Bacteriological Analysis of Paperboard.**Colonies per Gram of
Disintegrated Paperboard.****Sample No. 1**

Test 1	0
Test 2	0
Test 3	0
Test 4	less than 7
Test 5	less than 7

Sample No. 2

Test 1	0
Test 2	0
Test 3	0
Test 4	0
Test 5	0

Very truly yours,

J. R. Sanborn.

J. R. Sanborn.

JRS:MC

2591

PLAINTIFF'S EXHIBIT 24.**List of Cities Using Paper Milk Containers.****United States**

New York City
 Bridgeport, Conn.
 Jersey City, N. J.
 Newark, N. J.
 Trenton, N. J.
 Philadelphia, Pa.
 Baltimore, Maryland
 Cleveland, Ohio
 Detroit, Michigan
 St. Louis, Mo.
 Seattle, Washington
 Los Angeles, Cal.
 Maplewood, N. J.
 Nutley, N. J.
 Milburn, N. J.
 East Orange, N. J.

Wrightstown, N. J.
 Bordentown, N. J.
 Santa Barbara, Calif.
 San Francisco, Calif.
 Seattle, Wash.
 Pittsburgh, Pa.
 Globe, Arizona
 Miami, Arizona
 Phoenix, Arizona
 Merced, Calif.
 Sioux City, Iowa
 Wichita, Kansas
 Hutchinson, Kansas
 Kalamazoo, Michigan
 Omaha, Nebraska
 McCook, Nebraska

Orange, N. J.
 Plainfield, N. J.
 Belleville, N. J.
 Worcester, Mass.
 Toledo, Ohio
 Urbana, Ill.
 Atlanta, Ga.
 Wilmington, Del.
 Yonkers, N. Y.
 Mt. Vernon, N. Y.
 New Rochelle, N. Y.
 Portchester, N. Y.
 Buffalo, N. Y.
 Rochester, N. Y.
 Erie, Pa.
 Hackensack, N. J.
 Englewood, N. J.
 Harrison, N. J.
 Norwalk, Conn.
 Niagara Falls, N. Y.
 Allentown, Pa.
 Reading, Pa.
 Bethlehem, Pa.
 Chester, Pa.
 New Haven, Conn.
 Hoboken, N. J.
 Union City, N. J.
 Patterson, N. J.
 Passaic, N. J.
 Montclair, N. J.
 Asbury Park, N. J.
 Flint, Mich.
 Dearborn, Mich.
 Highland Park, Mich.
 46 Chicago suburbs
 Long Island City, N. Y.
 Brooklyn, N. Y.
 Long Island, N. Y.

Holdredge, Nebraska
 North Arlington, N. J.
 Lebanon, N. J.
 Camden, N. J.
 Califon, N. J.
 Irvington, N. J.
 Lakewood, N. J.
 N. Bergen, N. J.
 Madison, N. J.
 Perth Amboy, N. J.
 Belman, N. J.
 Phillipsburg, N. J.
 Clifton, N. J.
 Rutherford, N. J.
 Linden, N. J.
 Bayonne, N. J.
 Blairstown, N. J.
 Mankato, Minn.
 Poughkeepsie, N. Y.
 Watertown, N. Y.
 Sandusky, Ohio
 Carbondale, Pa.
 Plymouth, Pa.
 Hazleton, Pa.
 Pampa, Texas.
 Dallas, Texas
 Hopewell, Virginia.
 Indianapolis, Indiana.
 Washington, D. C.
 Everett, Wash.
 Oakland, Calif.
 Hollywood, Calif.
 Glendale, Calif.
 Burbank, Calif.
 San Bernadino, Calif.
 Long Beach, Calif.
 Berkeley, Calif.

1548

Plaintiff's Exhibit No. 25.

2592

Canada.

New Liskeard, Ontario
Blenheim, Ont.
Kingston, Ont.
Huntsville, Ont.
Windsor, Ont.
Caledonia, Ont.
Simcoe, Ont.
Toronto, Ont.
Belleville, Ont.
Hamilton, Onto.
Kirkland Lake, Ont.
Galt, Ont.
Goderich, Ont.
Islington, Ont.
North Bay, Ont.
Tillsonburg, Ont.

Kincardine, Ont.
Guelph, Ont.
Orillia, Ont.
Sault St. Marie, Ont.
Kitchener, Ont.
Meaford, Ont.
Ottawa, Ont.
Ancaster, Onto.
Southampton, Ont.
Port Elgin
Mountain Park, Alberta
Edmonton, Alberta
Leyland, Alberta
Rouyn, Quebec
Truro, Nova Scotia.

2593

PLAINTIFF'S EXHIBIT NO. 25.

November 14, 1938.

Mr. Martin Dwyer
53 Park Place
808 Dodge Building
New York City, N. Y.

Dear Mr. Dwyer:

In accord with the request made by Mr. Scott's secretary, I enclose a list of towns and cities in the United States and Canada which are using paper containers for regular production of milk and cream.

Very truly yours,

J. R. S.

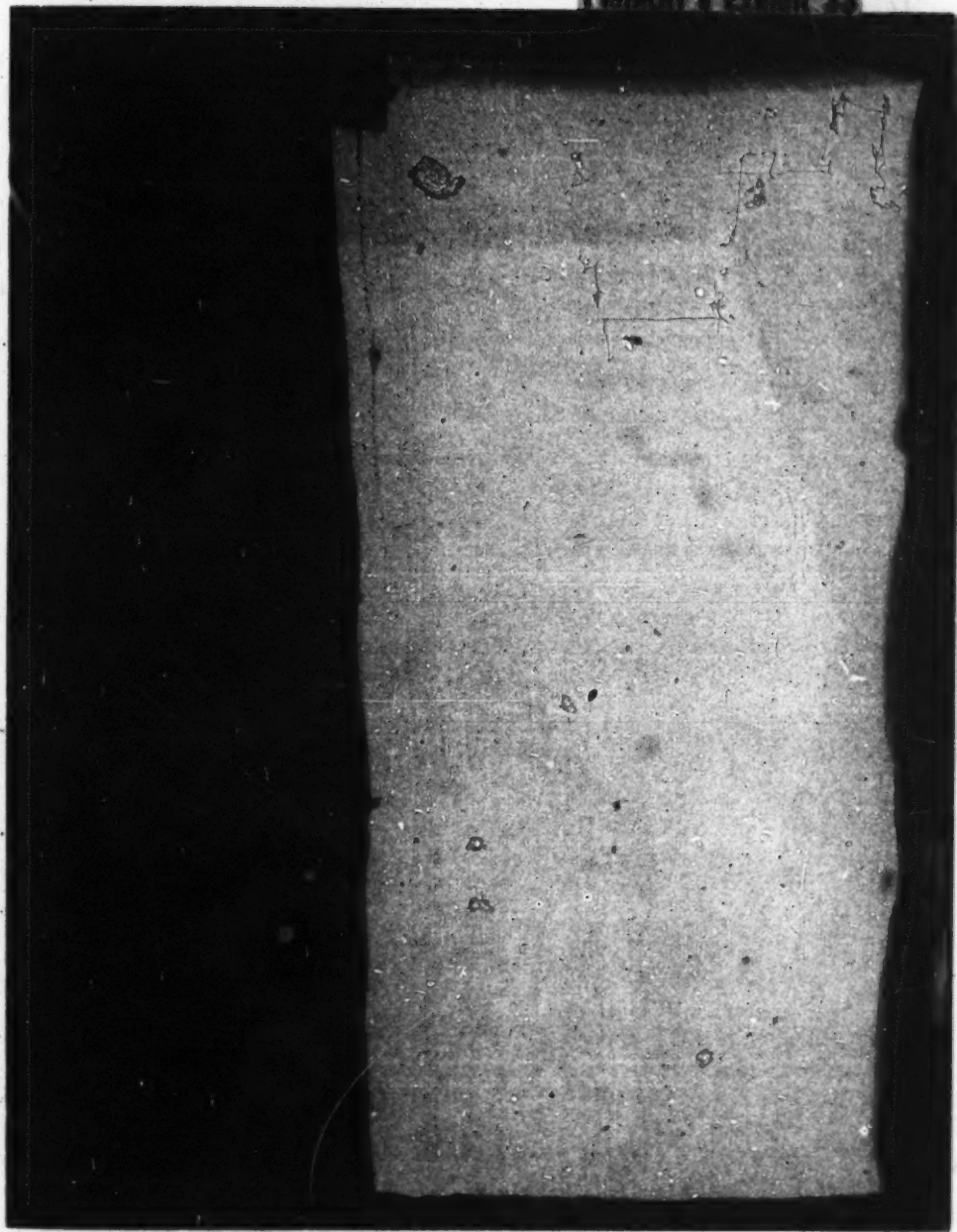
J. R. Sanborn.

JRS-H.

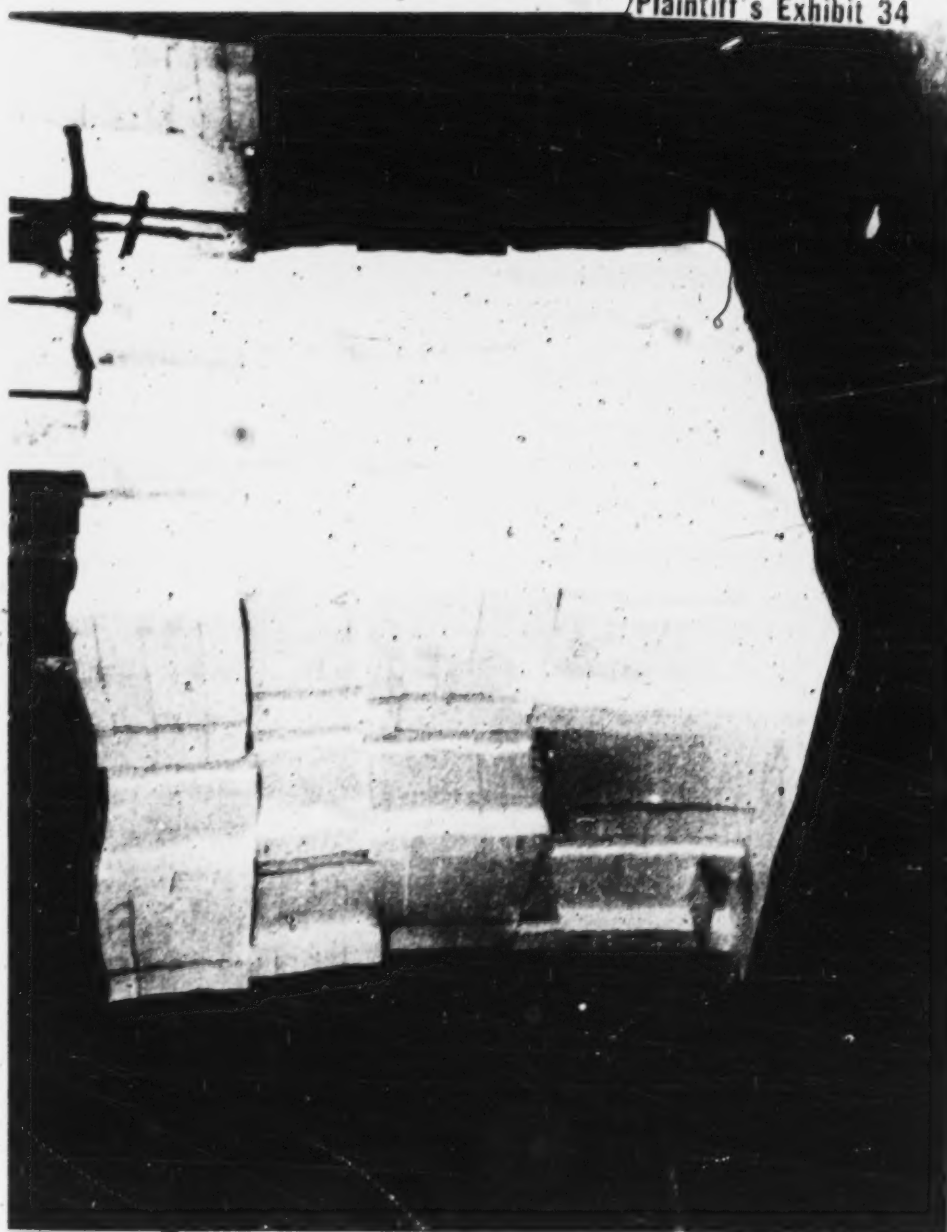
Copy to:

Mr. George D. Scott
Pure-Pak Division
Ex-Cell-O Corporation
1200 Oakman Boulevard
Detroit, Michigan.

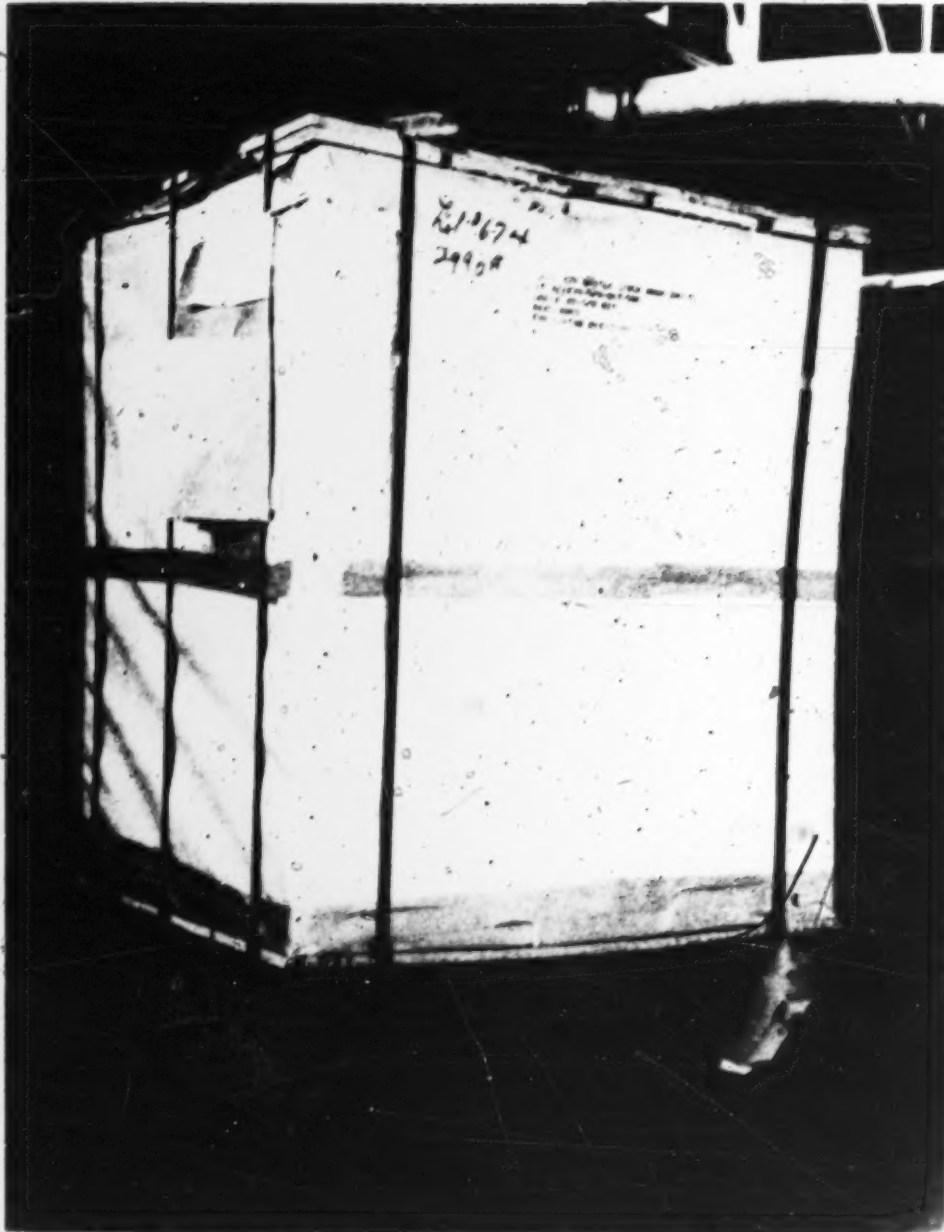
Plaintiff's Exhibit 23



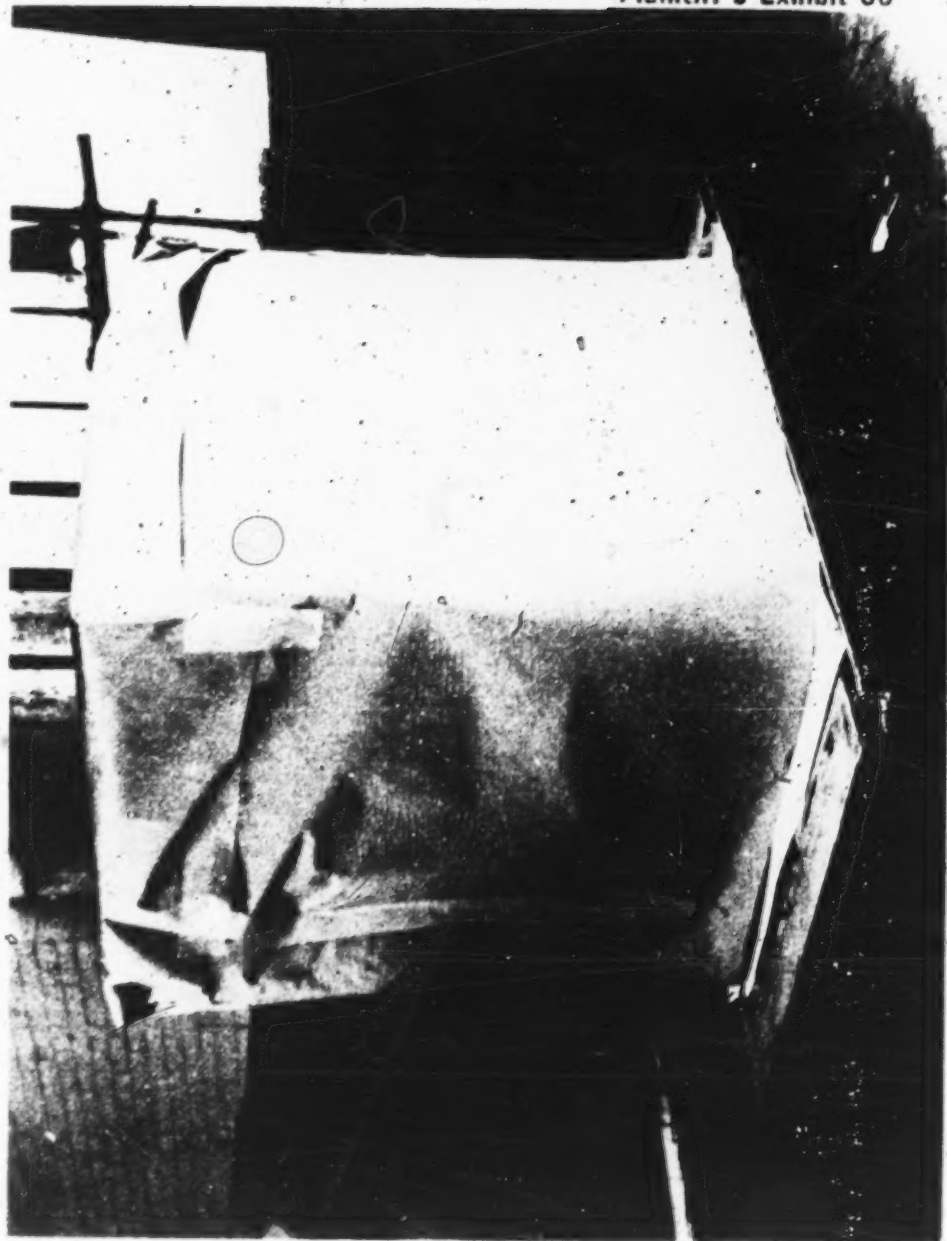
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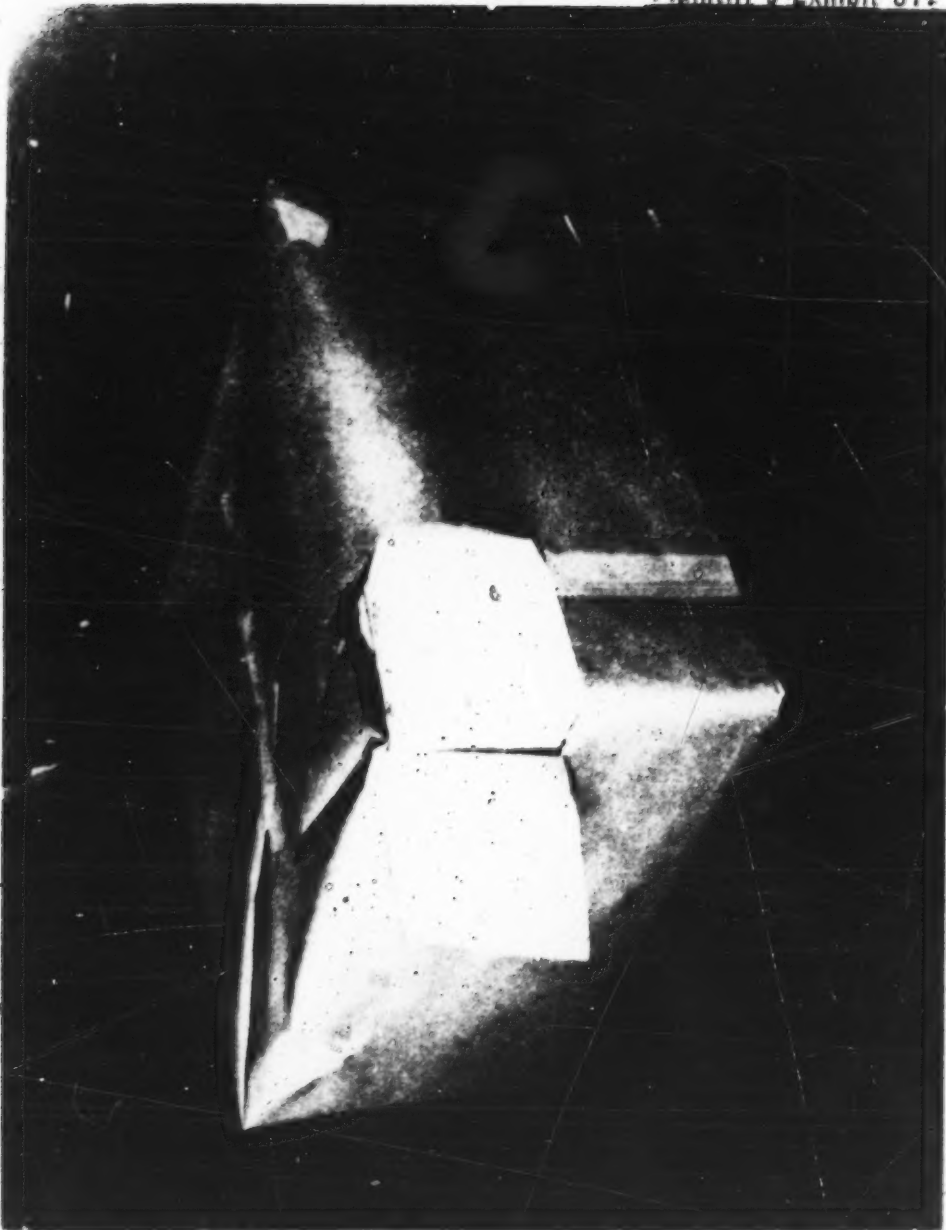
Plaintiff's Exhibit 35



Plaintiff's Exhibit 36

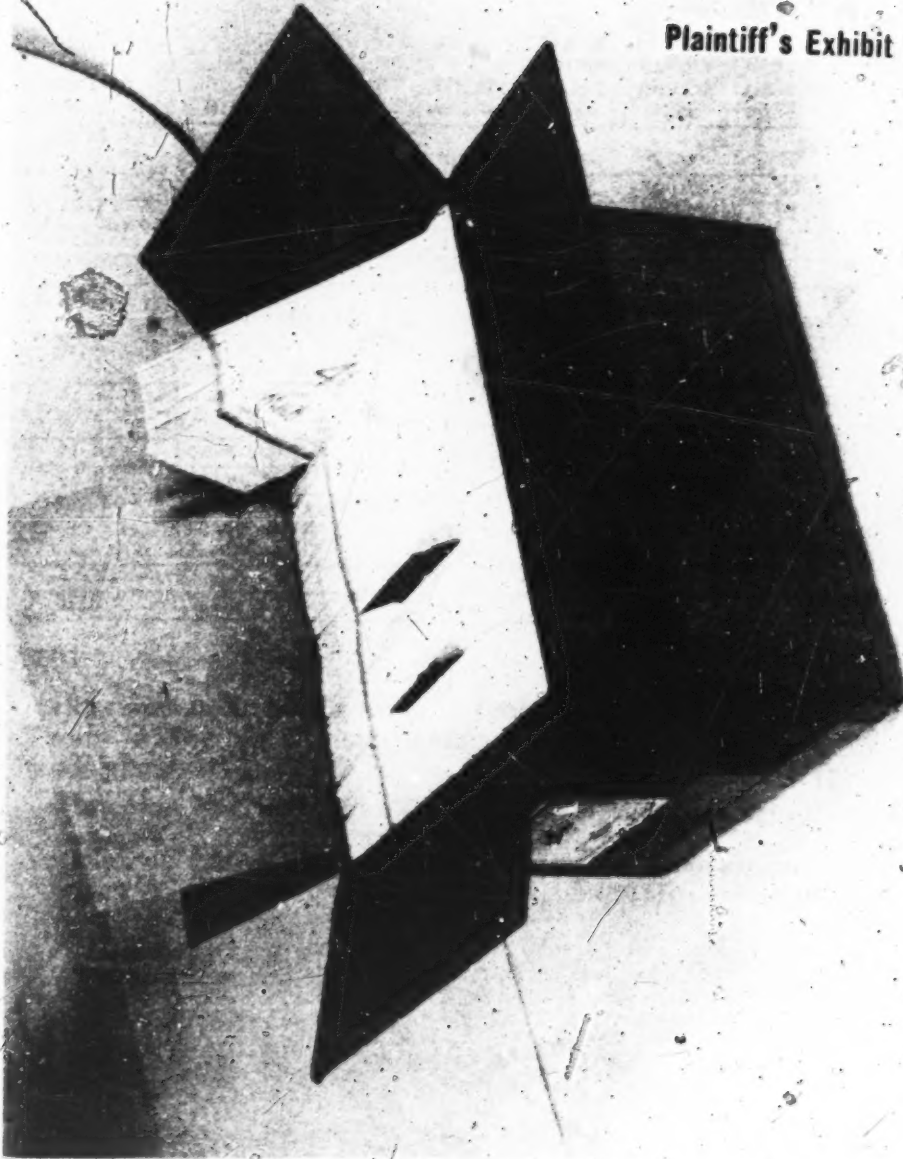


Plaintiff's Exhibit 37.



1559

Plaintiff's Exhibit 38



2600

PLAINTIFF'S EXHIBIT NO. 39.

SAMPLES OF MILK BOTTLE CARTON

Date sample taken	Brand or name	Wt. of sample	Vol. of disintegrated fluids	disintegrating time	Colonies 1 g. nutrient agar. 48 hrs. @ 37° C.
4/21	Lang's Sealed Milk (Qt.) Buffalo, N. Y.	10 g.	900 cc.	¾ hr.	70
4/23	Risdon Detroit (Pt.)	10 g.	900 cc.	¾ hr.	50
4/24	Risdon Detroit (Qt.)	10 g.	890 cc.	½ hr.	27
4/25	Risdon Detroit (Qt.)	10 g.	955 cc.	½ hr.	96
4/28	Lang Buffalo (Qt.)	10 g.	870 cc.	½ hr.	82
5/ 2	Risdon Coffee Cream (Pt.)	10 g.	850 cc.	1 hr.	no count
5/ 3	Greenbrier Lewisburg Co. (Qt.)	10 g.	790 cc.	¾ hr.	no count
5/ 4	Langs light cream (Pt.)	10 g.	880 cc.	1 hr.	no count
5/ 5		10 g.	890 cc.	1 hr.	no count
5/ 8	Langs (Qt.)	10 g.	930 cc.	1 hr.	18
5/ 9	Risdon (Qt.)	10 g.	820	1 hr.	57
5/10	Johnsons Detroit, Mich. cottage cheese 12 oz.	10 g.	960	¾ hr.	no count
5/11	Kroger Qt.	10 g.	1040	¾ hr.	40
5/12	Risdon (Qt.)	10 g.	800	1 hr.	no count

2601

4/3/39.

Obtained milk bottle cartons from C. Pigman in Glue Room. Asked him to send 10 samples each day of different kinds glued.

Plated on Nutrient Agar 37° C. for 24 hrs. and 48 hrs.

Date sample taken	Tested	Wt. of sample	Vol. of suspension	Colonies per gram
4/3/39	4/5/39	10 g.	1156	24 hrs. 48 hrs.

2602

MILK BOTTLE CARTONS FROM CHAS. FIGMAN

Date sample was taken	Wt. of sample	Total vol. of suspension	Colonies 1 gram incubated in nutrient agar for 48 hrs. @ 37° C.
5/16/39	10 grams	1150 cc.	46 colonies 1 gram
5/17/39	10 grams	925 cc.	90 colonies 1 gram
5/18/39	10 grams	830 cc.	none
5/19/39	10 grams	775 cc.	24 colonies 1 gram
5/20/39	10 grams	900 cc.	27 colonies 1 gram
5/23/39	10 grams	910 cc.	54 colonies 1 gram
5/24/39	10 grams	1020 cc.	none colonies 1 gram
5/25/39	10 grams	1000 cc.	none
5/26/39	10 grams	1080 cc.	54 colonies 1 gram

2603

MILK BOTTLE BOARD CHERRY RIVER CO.

Lot No.	Wt. of sample	Total bal.	Time	colonies 1 gram
				7.8 2
674 Rec'd 2/17/39	10 g.	785	¾ hr.	15.6 (16)
585 Rec'd 1/14/39	10 g.	890	¾ hr.	none
858 Rec'd 4/15/39	10 g.	1000	1 hr.	31

2604 21 COMPLETED SAMPLES OF MILK BOTTLES (GLUED)
FROM C. FIGMAN.

Date sample taken	Wt. of sample	Total vol.	Bacterial 1 g. 37° C. 48 hrs. nutrient agar		Name on Carton
4/10	10 g.	1000 cc.	10	Qt.	Tampa Buttermilk Producers
4/11	10 g.	1110 cc.	33	Qt.	Tampa Buttermilk Producers. Chocolate Milk
4/12	10 g.	1175 cc.	no count	Qt.	Tampa Buttermilk Producers
4/13	10 g.	1060 cc.	no count	½ Pt.	Risdon Bros. Inc. Whipping Cream
4/14	10 g.	960 cc.	50	Qt.	Kroger
4/15	10 g.	940 cc.	20	Qt.	Kroger
4/17	10 g.	790 cc.	no count	Pt.	Tampa Buttermilk Producers
4/18	10 g.	890	no count	½ Pt.	Hebracle Milk Co. Columbus, O.

2605

MILK BOTTLE CARTONS.

Rec'd	Wt.	Bal.	Time	Colonies 1 gram Agar 37° C. 48 hrs.
4/20/39	10 g.	920 cc.	¾ hr.	10 Risdon Bros.
4/21/39	10 g.	940 cc.	1 hr.	100 Risdon Bros.

MODEL "C"

SOAKER-BOTTLE WASHER

CHEBBY DURRELL

REGISTERED TRADE MARK



Plaintiff's Exhibit 44



2622

PLAINTIFF'S EXHIBIT NO. 45.

The Hilton-Davis Chemical Co.
Manufacturers of Fine and Industrial Chemicals
Office, Chemical Works and Research Laboratories
Langdon Road and Penn. R. R.

P. O. Box 8, Pleasant Ridge Station

Cincinnati, Ohio
23 June, 1939

Messrs. Garipey and Garipey
One North LaSalle Street, Suite 1361
Chicago, Illinois

Gentlemen:

At your request we are setting forth the following description of formulations used in the printing of Dean Milk Company milk cartons. There were six (6) inks used in the printing of these cartons and the following shows the percentage of each ingredient and an explanation of each component.

As indicated in the following formulas, a printing ink consists of a dry color, that is a colored material which is insoluble in water, an extender, a white inert material also insoluble in water, a vehicle, which is in most cases a drying oil and consists of linseed oil, a wax, and a drier. The ingredients are stirred until the dry material is wetted with the vehicle and it is then run over an attrition mill to disperse the solids into the vehicle to a smooth, homogeneous mass. When printed, the vehicle oxidizes thus forming a hard, tough film which adheres to the paper because of the fact that while still wet it penetrates into the fiber and thus forms a closely knitted bond.

#19990 Dean Pink	5 Pounds — Ounces	Superfifth
1	" —	Magnesia
2	" 8 "	28-F-100 Lithol Rubine
1	" —	55 Vehicle Deodorized
—	5 "	#3 Pale Linseed Vehicle
—	4 "	Ceresine Wax
—	2 "	#280 Drier
		#211 Drier
<hr/>		
#120274-1 Maroon	— Pounds 4 Ounces	Magnesia
—	4 "	Talc
—	10 "	#173 Red. Ca. Lithol
—	6 "	10-F-100 Ba. Lithol
2	8 "	#475 Vehicle Alkyd
—	1 1/2 "	Ceresine Wax
—	1 1/2 "	#211 Drier
—	1/2 "	#280 Drier

2623

#14148 Dean Brown	2 Pounds	8 Ounces	Magnesia
22	"	8 "	Med. Chrome Yellow
2	"	8 "	#120 Sod. Lithol Red
2	"	3 "	1307 Carbon Black
1	"	4 "	102 Barium Lithol Red
11	"	4 "	#3 Pale Linseed Vehicle
7	"	8 "	#0 Pale Linseed Vehicle
2	"	8 "	#622 Wax Compound
1	"	14 "	#6 Drier
#16358 Dean Orange	9 Pounds	— Ounces	#457 Alkyd Vehicle
1	"	2 "	#622 Compound Wax
			+ linseed
—		12 "	#5 Drier
1	"	—	#6 Drier
16	"	8 "	1666 Orange—Red Lake CY
2	"	4 "	120364 Barium Lithol
3	"	6 "	11356 Med. Chrome Yellow
#10782 Dean Blue	3 Pounds	— Ounces	1575 Magnesium + linseed
14	"	—	1508 TiO ₂ + linseed
3	"	—	10511 Tungstate Blue and linseed
1	"	8 "	#3 Pale Linseed Vehicle
—		12 "	#622 Wax and linseed Comp.
1	"	8 "	#5 Drier
1	"	—	#6 Drier
#17501-3 Dean Green	15 Pounds	— Ounces	#11347 Light Chrome Yellow and linseed
2	"	8 "	#11356 Med. Chrome Yellow and linseed
3	"	5 "	#10037 Iron Blue and linseed
1	"	—	#17294 Tungstate Green and linseed
4	"	8 "	#457 Alkyd Vehicle
1	"	8 "	#622 Wax and linseed
1	"	12 "	#6 Drier
—		12 "	Dextrine
1	"	8 "	Magnesia
1	"	—	Ceresine Wax

2624 Superlith:

Is a white inert, finely divided pigment made of 20% titanium dioxide and 80% lithophone, the lithophone being a mixture of barium sulphate and zinc sulphide. Is commonly used as an inert pigment in colors used on food cartons, wrappers, bags, etc.

Magnesium:

Ordinary magnesium carbonate. Is a white powder, chemically pure, edible, and is a pharmaceutical product.

Lithol Rubine:

An organic color which can be certified as a food color. It is an inert pigment which has been allowed as a food color when certified by the federal government. Insoluble in water and milk.

#55 Vehicle:

Made from pure linseed oil and a gum made by condensing rosin and glycerin, commonly called ester gum. The vehicle is a solution of the gum in the oil. Drying occurs by oxidation of the oil and the resulting tough, hard film is insoluble in water.

#3 Pale Linseed Vehicle:

Made from pure linseed oil by heating to 600 degrees F. for approximately two (2) hours, which thickens the oil. When used in an ink, it dries to a tough, hard film insoluble in water and milk.

Ceresine Wax:

A yellow-white, highly refined wax similar to paraffine in derivation and physical and chemical properties but harder. Like paraffine, it is insoluble in water and milk. Commonly used in inks for printing containers and wrappers for all kinds of food.

Driers:

A drier is a metallic linoleate. Its purpose in ink is to cause the vehicle to rapidly oxidize to a hard, tough film insoluble in water and paraffine. Without the drier the vehicle would remain wet indefinitely. Some driers are suitable for surface drying, others for body drying of the vehicle. Driers are made by the chemical reaction between metallic compounds like manganese, lead or cobalt, with linseed oil whereby there is produced a paste resembling mayonnaise in consistency, and which oxidizes to hard, tough film form. In both the paste and dried film form, the drier is insoluble in water and milk.

Driers are incorporated into inks to the extent of three or four per cent of the total weight of ink. The metallic content of driers is approximately 25 per cent the weight of drier.

Driers are a necessary component of all inks made from drying oils and are used on all types of food wrappers and packages.

Talc:

Ordinary triple-floated white talcum powder same as used in cosmetics.

#173 Red:

A calcium lithol. It is an inert pigment which has been allowed as a food color when certified by the federal government. This pigment is insoluble in milk and water.

#10-F-100 Red:

A barium lithol, same as #173 Red but of a different shade.

#475 Vehicle.

An alkyd resin made by condensing linseed oil with phthalic anhydride and glycerin. When this resin is dissolved in a drying oil such as linseed, it forms a hard film which is used in enamels and produces a very favorable vehicle for an ink which is on a food wrapper due to its high insolubility in liquids such as water and milk.

Medium Chrome Yellow:

An inorganic yellow pigment of a lead chromate constitution. This pigment is highly insoluble in water and milk and when ground into a vehicle forms a hard film highly insoluble in water. Has long been used in making inks for food cartons, wrappers and bags.

#120 Red:

Sodium lithol, same as #173 Red and 10-F-100 Red but of a different shade.

2626 #1307 Carbon Black:

Ordinary gas black. To produce, illuminating gas is burned with a deficiency of oxygen and the resulting pure carbon is collected on cold plates. This material is highly insoluble in any liquid.

#102 Barium Lithol Red:

Same as #173 Red except different shade.

#622 Compound:

Made from a mineral wax and linseed oil, the mineral wax being a highly refined paraffine wax.

#457 Vehicle:

The same constitution and properties as #475 Vehicle, the only difference being in viscosity.

#1666 Orange:

A pigment which can be certified as a food color. This color is insoluble in water and milk and differs from the lithols slightly.

#120364 Barium Lithol:

Same as 10-F-100.

#11356 Yellow:

Same as Medium Chrome Yellow.

#1575 White:

Magnesium carbonate, described before, is ground with linseed oil to form this basic white. It is used to cut the color strength of the inks.

#1508:

Titanium dioxide plus linseed oil. Titanium dioxide is a pure white oxide of titanium metal. It is highly inert and is used to form tints for printing inks. Not soluble in water or milk.

#10511 Blue:

Organic blue lake plus linseed oil. Blue lake is made by making a blue water-soluble dyestuff insoluble thus forming a pigment which is insoluble in water and milk and can be readily dispersed in a linseed oil.

#11347 Yellow:

Chrome yellow plus linseed oil. The chrome yellow in this material is the same as above described except that it has been ground into a linseed oil to form a base color.

#11356 Yellow:

Same as #11346 except a deeper shade, the chemical and physical properties being the same.

2627 #10037 Bronze Blue:

Iron blue plus linseed oil. Iron blue is a complex inorganic compound which has been used in the printing ink industry for many years. It is insoluble in water and milk and is used for the printing of food wrappers, cartons and bags.

#17294 Green:

An organic green lake plus linseed oil. This is an organic lake insoluble in water made from a green dyestuff which was originally soluble in water and milk, plus linseed oil.

Edible sugar, used in candies and foods.

All of these inks dry to a hard film and are insoluble in any of the ingredients which are found in milk, even before the paraffine coating is applied. They are made up in accordance with accepted procedures and with raw materials commonly used in the manufacture of offset and lithographic inks.

Yours very truly,
The Hilton-Davis Chemical Company,
By: L. A. Hoffman,
Vice President.

LA Hoffman
FG

PLAINTIFF'S EXHIBIT 46.

Table 18. Study on Self Purification of Paper.

This experiment was conducted as follows: Plaques of paper board 2" x 4" were infected by being dipped in a suspension of *B. prodigiosus* containing 600,000,000 bacteria per ml. The plaques were kept at room temperature after being infected.

The plaques were examined for bacteria

1. Immediately after being inspected.
2. 30 minutes later.
3. 60 minutes later.
4. 2 hours later.
5. 5 hours later.
6. 9 hours later.
7. 24 hours later.

Each plaque was reduced to pulp in 200 ml. of water and 10 plates were prepared, each receiving 2 ml. of the mixture. Each plaque was infected with 1,400,000 bacteria.

[illegible]

PLAINTIFFS EXHIBIT NO. 47.

Table 14—Bacterial Condition of Pure-Pak Containers from Fieldcrest Dairy.

No. of Con- tainer	Bact. Count	No. of Con- tainer	Bact. Count	No. of Con- tainer	Bact. Count	No. of Con- tainer	Bact. Count	No. of Con- tainer	Bact. Count
1....	1,250	41....	1	81....	0	121....	0	161....	0
2....	428	42....	1	82....	0	122....	0	162....	0
3....	120	43....	1	83....	0	123....	0	163....	0
4....	110	44....	1	84....	0	124....	0	164....	0
5....	100	45....	1	85....	0	125....	0	165....	0
6....	100	46....	1	86....	0	126....	0	166....	0
7....	100	47....	1	87....	0	127....	0	167....	0
8....	50	48....	1	88....	0	128....	0	168....	0
9....	50	49....	1	89....	0	129....	0	169....	0
10....	50	50....	1	90....	0	130....	0	170....	0
11....	50	51....	1	91....	0	131....	0	171....	0
12....	50	52....	1	92....	0	132....	0	172....	0
13....	50	53....	1	93....	0	133....	0	173....	0
14....	50	54....	0	94....	0	134....	0	174....	0
15....	50	55....	0	95....	0	135....	0	175....	0
16....	50	56....	0	96....	0	136....	0	176....	0
17....	27	57....	0	97....	0	137....	0	177....	0
18....	14	58....	0	98....	0	138....	0	178....	0
19....	9	59....	0	99....	0	139....	0	179....	0
20....	8	60....	0	100....	0	140....	0	180....	0
21....	7	61....	0	101....	0	141....	0	181....	0
22....	6	62....	0	102....	0	142....	0	182....	0
23....	6	63....	0	103....	0	143....	0	183....	0
24....	6	64....	0	104....	0	144....	0	184....	0
25....	4	65....	0	105....	0	145....	0	185....	0
26....	4	66....	0	106....	0	146....	0	186....	0
27....	3	67....	0	107....	0	147....	0	187....	0
28....	2	68....	0	108....	0	148....	0	188....	0
29....	2	69....	0	109....	0	149....	0	189....	0
30....	2	70....	0	110....	0	150....	0	190....	0
31....	2	71....	0	111....	0	151....	0	191....	0
32....	2	72....	0	112....	0	152....	0	192....	0
33....	2	73....	0	113....	0	153....	0	193....	0
34....	2	74....	0	114....	0	154....	0	194....	0
35....	2	75....	0	115....	0	155....	0	195....	0
36....	2	76....	0	116....	0	156....	0	196....	0
37....	2	77....	0	117....	0	157....	0	197....	0
38....	2	78....	0	118....	0	158....	0	198....	0
39....	1	79....	0	119....	0	159....	0	199....	0
40....	1	80....	0	120....	0	160....	0	200....	0

Mathematical average 14 bacteria per bottle.

PLAINTIFF'S EXHIBIT 447-A

Table 12. Bacterial Condition of Pure-Pak Paraffined Container as Revealed by Four Different Methods

[illegible]

2631

PLAINTIFF'S EXHIBIT NO. 48.

Table 8—Bacterial condition of washed and sterilized bottles in two plants in City of Chicago.

No. of Bottle	Bact. Count	No. of Bottle	Bact. Count	No. of Bottle	Bact. Count	No. of Bottle	Bact. Count
1.....	385,000	39.....	12,000	76.....	1,200	114.....	400
2.....	192,000	40.....	10,000	77.....	1,200	115.....	400
3.....	183,000	41.....	9,700	78.....	1,200	116.....	400
4.....	112,000	42.....	9,600	79.....	1,200	117.....	400
5.....	102,000	43.....	9,500	80.....	1,100	118.....	400
6.....	84,000	44.....	8,500	81.....	1,000	119.....	300
7.....	84,000	45.....	8,300	82.....	1,000	120.....	300
8.....	78,000	46.....	8,200	83.....	900	121.....	300
9.....	77,000	47.....	7,200	84.....	900	122.....	300
10.....	69,000	48.....	6,400	85.....	900	123.....	300
11.....	60,000	49.....	6,100	86.....	800	124.....	300
12.....	54,000	50.....	6,000	87.....	800	125.....	300
13.....	48,000	51.....	5,500	88.....	800	126.....	300
14.....	43,000	52.....	5,400	89.....	800	127.....	300
15.....	42,000	53.....	5,400	90.....	700	128.....	300
16.....	36,000	54.....	4,700	91.....	700	129.....	200
17.....	36,000	55.....	4,400	92.....	600	130.....	200
18.....	36,000	56.....	4,100	93.....	600	131.....	200
19.....	36,000	57.....	3,700	94.....	600	132.....	200
20.....	36,000	58.....	3,400	95.....	600	133.....	200
21.....	31,200	59.....	3,300	96.....	600	134.....	200
22.....	31,000	60.....	3,300	97.....	600	135.....	200
23.....	30,000	61.....	3,200	98.....	600	136.....	200
24.....	29,000	62.....	3,000	99.....	500	137.....	200
25.....	24,300	63.....	3,000	100.....	500	138.....	200
26.....	24,000	64.....	2,900	101.....	500	139.....	200
27.....	24,000	65.....	2,700	102.....	500	140.....	200
28.....	20,600	66.....	2,500	103.....	500	141.....	100
29.....	19,800	67.....	2,300	104.....	500	142.....	100
30.....	17,000	68.....	2,400	105.....	500	143.....	100
31.....	16,600	69.....	2,200	106.....	500	144.....	100
32.....	16,000	70.....	2,100	107.....	500	145.....	100
33.....	16,000	71.....	2,000	108.....	500	146.....	100
34.....	15,400	72.....	1,800	109.....	500	147.....	100
35.....	14,900	73.....	1,700	110.....	400	148.....	100
36.....	13,900	74.....	1,600	111.....	400	149.....	0
37.....	12,000	75.....	1,200	112.....	400	150.....	0
38.....	12,000			113.....	400		

Mathematical average 15,231.

PLAINTIFF'S EXHIBIT NO. 49.

Table 8.

Bacterial Condition of 132 Pure-Pak paraffined containers from eleven different milk plants.

Number of containers	No. of colonies on duplicate plates
43	0—0
40	0—1
24	1—1
11	1—2
4	2—2
3	2—3
1	3—4
1	9—14

Table 9.

Bacterial Condition of 395 Pure-Pak Containers.

Number of containers	No. of colonies on plates
98	0—0
110	0—1
76	1—1
56	1—2
33	2—2
13	3—4
1	4—4
3	4—5
1	5—5
3	5—6
1	7—8
1	10—11
1	20—21

PLAINTIFF'S EXHIBIT NO. 50.

Study on the Bacteriological Condition of the Paraffine Bath in Pure-Pak Machine.

Place: Fieldcrest Dairy, Chemung, Illinois. Time: March 24, 1939.

Machine: Pure-Pak.

Temperature of Paraffine: 170° F.

Plan of the Study: During the operation of the machine while about 2,000 containers were being filled with milk, samples of the paraffine from the paraffine well were taken for bacteriological test.

The test consisted of: (1) agar plate, (2) agar tube. The paraffine samples were taken from the well, at intervals, by means of 10 cc. pipettes. Each sample consisted of 5 cc. of the paraffine. The paraffine was dropped in plates and warm agar was poured in for inoculation of the tubes, the paraffine was dropped in the tube in warm agar and this was shaken.

Table I.

Sample	Time Taken	No. of colonies on plates	Growth in Tubes	Remarks
1	11:50	0	0	At start
2	12:00	0	0	After whipping cream bottling
3	12:05	0	0	Before coffee cream bottling
4	12:15	0	0	After ½ pint cream bottled
5	12:30	0	0	After all cream bottled
6	12:50	0	0	Before milk bottling—slab of paraffine added.
7	1:05	0	0	15 minutes bottling milk
8	1:25	0	0	30 minutes bottling milk
	1:30			Slab of paraffine added
9	1:40	0	0	45 minutes bottling
10	1:55	0	0	60 minutes bottling—slab of paraffine added.
11	2:05	0	0	Bottling finished
12	2:05		+	Sample from train poked open
13	2:05		0	with a nail.

The test was repeated on March 26, Sunday.

The test was modified—Agar plates were prepared by pouring about 10 cc. of the paraffine in the plates, covering the whole bottom. Then nutrient agar was poured in and on the agar.

Nutrient broth in test tubes was inoculated by pouring in about 5 cc. of the paraffine.

Large test tubes were prepared by putting in each tube about 10 cc. of the paraffine and then rolling the tubes so that the paraffine covered most of the inside surface. After hardening, broth was poured in. These cultures were incubated at 90° F. for several days. Results are given in Table II.

2634

Sample	Time Taken	No. of Colonies	Agar Plate Counts	Large Tubes	Small Tubes	Remarks
1	11:20	0	0	0	000	Before bottling started
2	12:00	0	3	0	000	End of whipping cream bottling
3	12:25	0	1	0	000	End of coffee cream ½ pint bottling
4	12:45	0	0	0	000	End of qt. coffee cream bottling
5	1:00	0	0	0	000	15 minutes of milk bottling
6	1:16	0	0	0	00+	30 minutes of milk bottling
7	1:40	0	1	0	000	55 minutes of milk bottling
8	1:52	0	0	0	000	67 minutes of milk bottling
9	2:18	0	0	0	000	End of bottling

0 = no growth.

+= growth.

PLAINTIFF'S EXHIBIT NO. 51.

Table 16—Bactericidal Property of Paraffining.

Paper board plaques 2"x4½" were inoculated by being dipped in *B. prodigiosus* suspension and then paraffined at 170° F. for 15 seconds. As soon as paraffine coating hardened, the plaques were reduced to pulp in 200 ml. of water. Ten plates were poured each containing 2 ml. of the pulp mixture. In the table is given the number of colonies of *B. prodigiosus* that developed on each plate.

Abbreviations:

N = plaque not paraffined.

P = plaque paraffined.

W = plaque wet, not allowed to dry after being dipped in the suspension.

D=plaque dry, allowed to dry 30 minutes after being dipped in the suspension.

MI=milliliter or cubic centimeter, about 20 drops.

Test 1 = Bacterial suspension used had a plate count of 2,120,000,000 per ml.

[illegible]

Test 2 = Bacterial suspension used had a plate count of 59,000,000 per ml.

7-WN	438	340	444	474	524	566	626	626	845	910
8-WP	0	0	0	0	0	0	0	0	0	0
9-WP	0	0	0	0	0	0	0	0	0	0
10-DN	22	25	32	33	40	41	41	42	42	45
11-DP	0	0	0	0	0	0	0	0	0	1
12-DP	0	0	0	0	0	-0	0	0	0	0

Test 3 = Bacterial suspension used had a plate count of 51,000,000 per ml.

[illegible]

2636 Test 4 — Bacterial suspension used had a plate count of 1,840,000 per ml.

19 — WN	102	125	164	206	224	240	265	274	281	420
20 — WP	0	0	0	0	0	0	0	0	0	0
21 — WP	0	0	0	0	0	0	0	0	0	0
22 — DN	3	6	7	8	9	9	14	18	21	31
23 — DP	0	0	0	0	0	0	0	0	0	0
24 — DP	0	0	0	0	0	0	0	0	0	0

Test 5. Bacterial suspension used had a plate count of 320,000,000 per ml.

25 — WN	50000	50000	50000	50000	50000	50000	50000	50000	50000	50000
26 — WP	4	11	12	10	14	15	16	18	20	24

Bacterial suspension used had a plate count of 3,200,000 per ml.

27 — WP	0	0	0	0	0	0	0	0	0	1
28 — WP	0	0	0	0	0	0	0	0	0	0

Bacterial suspension used had a plate count of 32,000 per ml.

29 — WP	0	0	0	0	0	0	0	0	0	0
30 — WP	0	0	0	0	0	0	0	0	0	0

2637

PLAINTIFFS EXHIBIT NO. 52.

Table 7. Contamination of Milk by Pure-Pak Machine
When Practically Sterile Milk Was Bottled.
Colonies per ml. on duplicate plates.

First Test		Second Test	
Bolled milk	2 — 6	Bolled milk	
Put in reservoir	6 — 8	Can 1	5 — 2
1st bottle	66 — 58	Can 2	2 — 2
2nd bottle	25 — 27	Can 3	1 — 4
3rd bottle	16 — 17	Can 4	1 — 3
4th bottle	4 — 15	Mixed in reservoir	7 — 3
5th bottle	16 — 17	Left cylinder	33 — 44
6th bottle	8 — 15	Right cylinder	30 — 29
7th bottle	10 — 14	1st bottle	49 — 40
8th bottle	10 — 8	2nd bottle	5 — 8
9th bottle		3rd bottle	8 — 5
10th bottle	8 — 10	4th bottle	8 — 7
11th bottle	13 — 10	5th bottle	7 — 5
12th bottle	7 — 12	6th bottle	11 — 11
13th bottle		7th bottle	6 — 6
14th bottle	10 — 6	8th bottle	4 — 8
15th bottle	4 — 14	9th bottle	8 — 4
16th bottle	8 — 8	10th bottle	7 — 7
17th bottle	9 — 13	11th bottle	5 — 0
18th bottle	13 — 16	12th bottle	9 — 4
19th bottle	13 — 18	13th bottle	11 — 11
		14th bottle	5 — 10
		15th bottle	3 — 4
		16th bottle	7 — 10
		17th bottle	10 — 20
		18th bottle	6 — 10
		19th bottle	7 — 8
		20th bottle	16 — 15
		21st bottle	19 — 13

Number of Bacteria Enmeshed in the Paper Used for Dairy Products.

Description of the paper or container	Number of bacteria per gram
1. Bottle cap used on glass bottles.....	200
2. Bottle cap used on glass bottles.....	120
3. Bottle cap used on glass bottles.....	500
4. Bottle cap used on glass bottles.....	50
5. Bottle cap used on glass bottles.....	80
6. Bottle cap used on glass bottles.....	140
7. Bottle cap used on glass bottles.....	400
8. Bottle cap used on glass bottles.....	220
9. Bottle cap used on glass bottles.....	150
10. Bottle cap used on glass bottles.....	200
11. Bottle cap used on glass bottles.....	80
12. Bottle cap used on glass bottles.....	110
13. KUP parchment butter paper—5½ x 6½.....	80
14. KUP parchment butter paper—5½ x 6½.....	130
15. KUP vegetable parchment butter paper—5½ x 6½.....	60
16. KUP vegetable parchment butter paper—8 x 11.....	20
17. Parchment paper used for cream cans—11 x 11.....	210
18. Parchment paper used for cream cans—11 x 11.....	80
19. Individual Dixie cups.....	110
20. Individual Dixie cups.....	60
21. Individual Dixie cups.....	30
22. Individual Dixie cups.....	60
23. Ice Cream containers, pint size.....	80
24. Ice Cream containers, pint size.....	120
25. Ice Cream containers, pint size.....	110
26. Ice Cream containers, pint size.....	80
27. Ice Cream containers, pint size.....	50
28. Ice Cream cups, ¼ pint.....	120
29. Ice Cream cups, ¼ pint.....	70
30. Ice Cream quarts.....	200
31. Ice Cream pails.....	90
32. Ice Cream pails.....	30
33. Ice Cream pails.....	20
34. Ice Cream pails.....	90
35. Cheese containers, 6 oz.....	30
36. Cheese containers, 6 oz.....	30
37. Cottage Cheese container.....	200
38. Cottage Cheese container.....	80
39. Cottage Cheese, 6 oz.....	10
40. Cottage Cheese, 6 oz.....	20
41. Cottage Cheese, 12 oz.....	12
42. Cottage Cheese, 12 oz.....	50
43. Butter carton.....	1500

The samples were cut out with sterile knife from the walls and bottoms of the containers. They were reduced to pulp and the mixture of pulp & water was plated.

2639

PLAINTIFF'S EXHIBIT NO. 54.

Table 3. Bacteriological Condition of Paper Milk Containers Before Being Paraffined.

No. of Colonies on Duplicate Plates.

1. 0-0	27. 0-1	53. 1-1	79. 1-2	105. 3-4
2. 0-0	28. 0-1	54. 1-1	80. 1-2	106. 3-4
3. 0-0	29. 0-1	55. 1-1	81. 0-3	107. 3-5
4. 0-0	30. 0-1	56. 1-1	82. 0-3	108. 2-6
5. 0-0	31. 0-1	57. 1-1	83. 0-3	109. 4-5
6. 0-0	32. 0-1	58. 1-1	84. 0-3	110. 4-5
7. 0-0	33. 0-1	59. 1-1	85. 2-2	111. 4-5
8. 0-0	34. 0-1	60. 1-1	86. 2-2	112. 4-5
9. 0-0	35. 0-1	61. 0-2	87. 2-2	113. 5-5
10. 0-0	36. 0-1	62. 0-2	88. 2-2	114. 4-6
11. 0-0	37. 0-1	63. 0-2	89. 1-3	115. 4-6
12. 0-0	38. 0-1	64. 0-2	90. 0-4	116. 3-7
13. 0-0	39. 0-1	65. 0-2	91. 0-4	117. 5-8
14. 0-0	40. 0-1	66. 0-2	92. 0-4	118. 5-8
15. 0-0	41. 0-1	67. 1-2	93. 2-3	119. 5-8
16. 0-0	42. 0-1	68. 1-2	94. 2-3	120. 8-8
17. 0-0	43. 0-1	69. 1-2	95. 2-3	121. 8-9
18. 0-0	44. 0-1	70. 1-2	96. 2-3	122. 8-10
19. 0-0	45. 0-1	71. 1-2	97. 2-3	123. 9-10
20. 0-0	46. 0-1	72. 1-2	98. 2-3	124. 9-11
21. 0-0	47. 0-1	73. 1-2	99. 1-4	125. 9-13
22. 0-0	48. 0-1	74. 1-2	100. 3-3	126. 11-15
23. 0-0	49. 0-1	75. 1-2	101. 2-4	127. 13-15
24. 0-0	50. 0-1	76. 1-2	102. 2-4	128. 17-19
25. 0-0	51. 1-1	77. 1-2	103. 1-5	
26. 0-1	52. 1-1	78. 1-2	104. 1-5	

2640 PLAINTIFF'S EXHIBIT NO. 55.

Table 12—Bacterial Contamination of Milk by the Pouring Lips of Glass Bottles.

The pouring lip and the outside of the bottles were contaminated with *B. prodigiosus* culture and the bottles were then opened and three samples of milk were taken:

Sample 1—the very first stream of milk.

Sample 2—after $\frac{1}{4}$ of the bottle poured out.

Sample 3—the last of the milk poured out.

Practically sterile milk was used so that 1 ml. of the milk was put in each of 2 plates.

Abbreviations:

— no red colonies.

+ one or more red colonies—few at most.

++ numerous red colonies.

Test 1. Controls—3 bottles not contaminated, opened with sterile hand.

No. of bottle	First pouring	Second pouring	Third pouring
1	—	—	—
2	—	—	—
3	—	—	—

Test 2. 6 bottles opened with contaminated hands, pouring lip was not touched.

1	—	+	—
2	—	—	—
3	—	—	—
4	+	—	—
5	+	+	—
6	—	+	+

Test 3. 6 bottles opened with contaminated hands. Outside pouring lip touched, not the inside of it.

1	+	+	+
2	+	+	+
3	+	+	+
4	+	+	+
5	+	+	+
6	+	+	+

2641 Test 4. 6 bottles were opened with contaminated hands, inside pouring lip touches.

No. of bottle	First pouring	Second pouring	Third pouring
1	++	++	++
2	++	++	++
3	++	++	++
4	++	++	++
5	++	++	++
6	++	++	++

Test 5. 2 glass bottles of milk, one with certified milk hood were submerged for 24 hours in a *B. prodigiosus* suspension which had a plate count of 30,000,000 per ml. Then the bottles were taken out, allowed to dry, and samples of milk were both poured out and pipetted.

No. of bottle	First pouring	Second pouring	Third pouring	Removed with pipet
1	++	++	++	++
2	++	++	++	++

2642 PLAINTIFF'S EXHIBIT NO. 56.

Table 10. Number of Bacteria on and in Paper For Pure-Pak Container. Pouring Lip.

The plaques 2.7 grams were cut out of the unparaffined container in such a manner as to include a part of the pouring lip.

The plaques were reduced to pulp in 200 ml. of water and 2 ml. of the mixture was put in each of 9 plates.

Sample No.	Bacteria per Gram
1	0
2	18
3	18
4	33
5	26
6	18

2643

PLAINTIFF'S EXHIBIT NO. 57.

Table 11. Bacterial Contamination of Milk by the Pouring Lip of Pure-Pak Containers.

Test 1. Four plates were poured from each of 20 containers.

No. of container	No. of colonies on each of 4 plates			
	1	2	3	4
1	0	0	0	0
2	0	0		
3	0	0	0	1
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
17	0	0	0	0
18	0	0	0	0
19	0	0	0	0
20	0	0	0	0

Test 2. Two containers opened with contaminated hands.

1	0	0	0	0
2	0	0	0	0

Test 3. Two containers opened with clean hands in usual manner.

1	0	0	0	0
2	0	0	0	0

Test 4. Four containers were submerged in *B. prodigiosus* suspension having plate count of 15,000,000 per ml.—24 hours at 70° F.

1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0

2644 Test 5. Four containers were submerged in similar *B. prodigiosus* suspension 24 hours at 40° F.

1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0

Test 6. Four containers were submerged in similar *B. prodigiosus* suspension for 48 hours at 40° F.

1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0

Test 7. Four containers were completely submerged in *B. prodigiosus* at 40° F. 1 and 2 for 24 hours and 3 and 4 for 48 hours.

1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0

2645

PLAINTIFF'S EXHIBIT NO. 58.

Table 17. Showing the effect of paraffining on bacteria when the containers were inoculated before paraffining.

Method of inoculation—The operator dipped his hands in the suspension and rubbed the surfaces of the containers.

No. of test	No. of containers treated	160°F.		170°F.		180°F.		185°F.		190°F.		200°F.		No. of bacteria per ml. in suspension
		N—P		N—P		N—P		N—P		N—P		N—P		
1	300	91-9		99-1		98-2								250,000,000
2	300	100-0		100-0		100-0								2,500,000
3	300	91-9		99-1		100-0								50,000,000,000
4	400			97-3		98-4				91-9		98-2		120,000,000
5	600					200-0		200-0		200-0				200,000,000

Method of inoculation—The operator dipped his hands in the suspension and just handled the containers as is normally done in feeding the machine.

6	300			100-0		100-0				100-0				100,000,000
7	300			100-0		100-0				100-0				100,000,000
8	600			200-0		200-0				199-1				200,000,000

N = No. bacteria found.

P = Number of colonies that developed in the containers.

2646

PLAINTIFF'S EXHIBIT NO. 59.

Table:—Bacterial counts of 50 glass bottles and 50 Pure-Pak containers.

Glass bottles were taken at Ogden Dairy, Chicago, July, 1939.

Paper containers came from Fieldcrest Dairy, Chemung, Ill.

Glass bottles were taken as they traveled from the bottle washer to be filled with milk. One bottle was taken every 5 minutes—and plates were made within 5 minutes.

					Quart Size Pure-Pak	Quart Size Glass
1	bottle	had	bacteria	count of	1250	8300
2	bottles	"	"	"	100	7200
3	"	"	"	"	100	5400
4	"	"	"	"	100	3400
5	"	"	"	"	50	2400
6	"	"	"	"	50	1200
7	"	"	"	"	50	1200
8	"	"	"	"	50	1200
9	"	"	"	"	50	1200
10	"	"	"	"	50	1200
11	"	"	"	"	50	900
12	"	"	"	"	50	900
13	"	"	"	"	50	900
14	"	"	"	"	0	900
15	"	"	"	"	0	800
16	"	"	"	"	0	800
17	"	"	"	"	0	700
18	"	"	"	"	0	700
19	"	"	"	"	0	600
20	"	"	"	"	0	600
21	"	"	"	"	0	600
22	"	"	"	"	0	600
23	"	"	"	"	0	600
24	"	"	"	"	0	600
25	"	"	"	"	0	500
26	"	"	"	"	0	500
27	"	"	"	"	0	500
28	"	"	"	"	0	500

						Quart Size Pure-Pak	Quart Size Glass
29	"	"	"	"	"	0	400
30	"	"	"	"	"	0	400
31	"	"	"	"	"	0	400
32	"	"	"	"	"	0	400
33	"	"	"	"	"	0	400
34	"	"	"	"	"	0	400
35	"	"	"	"	"	0	300
36	"	"	"	"	"	0	300
37	"	"	"	"	"	0	300
38	"	"	"	"	"	0	300
39	"	"	"	"	"	0	300
40	"	"	"	"	"	0	300
41	"	"	"	"	"	0	200
42	"	"	"	"	"	0	200
43	"	"	"	"	"	0	200
44	"	"	"	"	"	0	200
45	"	"	"	"	"	0	200
46	"	"	"	"	"	0	200
47	"	"	"	"	"	0	100
48	"	"	"	"	"	0	100
49	"	"	"	"	"	0	100
50	"	"	"	"	"	0	0

2647

PLAINTIFF'S EXHIBIT NO. 60.

Table 24. Bacterial Condition of Adhesives Used in Pure-Pak Containers.

No. of colonies on 5 plates; dilution 1/10.

Sample	Plates					Per Gram
	1	2	3	4	5	
1	0	0	3	2	3	16
2	0	0	0	0	0	0
3	1	2	0	0	1	8
4	2	0	0	0	0	4
5	0	1	0	1	1	6
6	0	0	0	0	1	2
7	1	0	1	1	1	8

2648

PLAINTIFF'S EXHIBIT NO. 61.

**FEDERAL SECURITY AGENCY
U. S. Public Health Service
Washington**

(Cut)

**In Replying
Address the Surgeon General
U. S. Public Health Service
Sanitation Section
D. Q. Division**

September 12, 1939

**Mr. Owen Ball
Eckert & Peterson
135 South LaSalle Street
Chicago, Illinois**

Dear Mr. Ball:

Receipt is acknowledged of your communication of September 8 with regard to regulations governing the manufacture and use of single-service containers for milk.

There is attached a copy of the regulations governing the manufacture, packing, transportation, and handling of single-service containers, milk bottle caps, and covers, as adopted by the Public Health Service Sanitation Advisory Board at its June, 1939 meeting.

The above regulations will appear in the forthcoming printed 1939 edition of the milk ordinance and code recommended by the Public Health Service for adoption by States and communities, which is expected to become available within the next two months. The printed 1939 edition will supersede and will contain some changes from the mimeographed 1939 edition, copy of which is enclosed.

Very truly yours,

A. W. Fuchs

A. W. Fuchs

*Senior Sanitary Engineer for Chief,
Sanitation Section.*

Enc.

WND:hb

CC: City Health Officer

CC: State Health Officer

CC: Dr. Haskell

Rec'd Sep 14 1939

2649

PLAINTIFF'S EXHIBIT NO. 61.

U. S. PUBLIC HEALTH SERVICE

Washington

(Cut)

In Replying

Address the Surgeon General

U. S. Public Health Service

Sanitation Section

D. Q. Division

June 27, 1939

Public Health Service Sanitation Advisory Board Action
on Single-Service Containers, Etc. at June 1939 Meeting.

The following sentence is to be added to items 10p and 12r of the forthcoming 1939 printed edition of the Public Health Service Milk Ordinance:

"The manufacture, packing, transportation, and handling of single-service containers and container caps and covers shall be conducted in a sanitary manner."

The following paragraph is to be added to Public Health Reason under items 10p and 12r:

"Single-service containers, etc. which have not been manufactured and handled in a sanitary manner may contaminate the milk."

The following material is to be added under Satisfactory Compliance of items 10p and 12r:

"(5) The manufacture, packing, transportation and handling of single-service containers and container caps and covers are conducted in accordance with the following requirements. Inspections required herein may be made by the health officer or by any agency authorized by him.

(a) The buildings and rooms in which single-service containers and container caps and covers are manufactured, packed, stored, and handled shall be clean, well lighted and ventilated, and free of dust and flies, as prescribed in items 1p, 2p, 3p, 4p, 6p, 7p, 8p, and 11p.

(b) The average bacterial plate count of the stock from which single-service containers and container caps and covers are made shall not exceed 100 colonies per gram. No substance shall be present in finished single-service

containers and container caps and covers which is toxic.

2650 (c) All operations at the fabrication plant and during transportation of the manufactured articles shall be so conducted as to reduce to a minimum the possibility of contaminating the manufactured articles, as prescribed in items 13p, 14p, and 15p.

(d) All of those parts of machinery and equipment with which the article being manufactured comes in contact shall be kept clean.

(e) All single-service containers and container caps and covers shall be so treated as to be as impervious to milk and milk products as practicable.

The porous condition of paraffined containers now available and the sloughing off of particles of paraffin into the product are undesirable, and manufacturers of single-service containers are urged to make every effort to provide a non-absorbent non-flaking surface.

(f) All single-service containers and container caps and covers shall prior to use be given bactericidal treatment equivalent to contact with paraffin for at least 30 seconds or at least 180° F.* in approved equipment operated in an approved manner. The bactericidal treatment equipment shall be provided with approved indicating and recording thermometers, and shall be so designed as automatically to insure the required temperature and contact time.

2651

PLAINTIFF'S EXHIBIT NO. 62.

Journal of Milk Technology

Sanitary Aspects of Paper Milk Containers*

M. J. Prucha

University of Illinois, Urbana, Illinois

The bottling of fluid milk in paper containers is not a new idea. In a book by Kenelm Winslow, entitled "Production and Handling of Clae Milk," published in 1909, the following statement appears on page 140: "The latest

* This time-temperature subject to change as a result of further studies being conducted by National Institute of Health.

* Read before the Twenty-sixth Annual Meeting of the International Association of Milk Sanitarians, Louisville, Ky., October 11-13, 1937.

departure in the way of a milk bottle is the single service milk container of pulp wood invented and made by G. W. Maxwell of 1201 Falsom Street, San Francisco, California. It is now in actual use by dairymen in Los Angeles, California."

While the paper milk container was invented some thirty years ago, very little attention was paid to it by the fluid milk industry or by the milk sanitarians. It is only within the last few years that the paper milk container has forced its way into the fluid milk industry and to the attention of the milk sanitarians.

The paper milk container brings with it new problems, economic, practical, and sanitary.

As a result of demand for information concerning the paper milk container, a study on the subject was undertaken by the Dairy Department, University of Illinois. This paper is a progress report on some sanitary problems connected with the use of paper containers for fluid milk.

There are on the market at present at least five different types of paper milk containers. The study reported here was carried on specially with the Pure-Pak milk container. In the case of this container, the paper (after it is made in the paper mill) is packed in large bundles and is shipped to the carton manufacturing company. Here the container is cut out, printed, and sealed along its long edge. It is packed and shipped to the dairy plant in a collapsed condition. In the milk plant the containers are fed into the Pure-Pak machine, made by the Ex-Cell-O Corporation of Detroit, Michigan. The container enters the machine at one end in its collapsed condition and comes out at the other end filled with milk and sealed. As it passes through the machine the container is formed, its bottom is sealed, it is dipped in hot paraffin, passed through a cooling chamber, filled with milk, and finally it is sealed and dated.

A paper mill requires a great deal of water so every mill is located by some abundant body of water—it may be lake, river or well. The spruce tree trunks are first washed and cleaned of bits of bark. As they pass from the washing machine to the cutter they are sorted, as only sound and free-from-bark-and-knots logs are acceptable. The logs are cut into $\frac{3}{4}$ inch chips. The chips are sorted as they pass on their way to the cooker. The cooking solution is made from sulphur and lime. The wood chips are cooked

in large steel cylinders, lined with brick, for about 15 to 20 hours at a temperature of 120° C. or above.

The digested wood pulp is dumped into large vats where it is washed with fresh filtered water. From here the pulp passes over screens and continues to be washed and cleaned of bits of knots. When in desired condition the pulp passes into large white-tile lined tanks where it is bleached. The bleached pulp passes into another series of tiled tanks where it is again washed, to remove the excess of chlorine and bleaching residue.

At this stage an emulsion of partly saponified rosin and paper makers alum ($\text{Al}_2(\text{SO}_4)_3 \cdot 18\text{H}_2\text{O}$) is added. The pulp then is pumped to a Jordan engine and then it passes to the paper machine vat. From here the pulp is picked out by revolving cylinders covered with fine mesh wire cloth. Layers of the pulp adhering to the cylinder are then carried on and pass over a large number—about 30—of large steel cylinders. These cylinders are heated with steam at about 15 pounds guage pressure. As the pulp—paper—comes off the last cylinder it is dry and hot, the water being evaporated from it; or rather it “boiled off” as the pulp passed over the hot cylinders. The paper is cut in suitable sheets and packed.

In the sulphite process of preparing pulp, the treatment is such that pulp is made practically sterile in three places. First in the steam digesting cylinders, the pulp comes out absolutely sterile. During the washing process it becomes contaminated by the water and equipment. In the bleaching vat it is again sterilized. It again becomes contaminated by the water as it is washed and diluted. The size also adds a few bacteria. As the pulp enters the paper machine and passes over the steam rollers it again is at least partially sterilized.

The bacteriological examination showed the pulp to be sterile in the bleaching vats. After it was washed, diluted, and treated with size, it gave a bacterial plate count of 400. As the diluted pulp entered the wire screen the count was 40. Two by two inch strips of paper, taken as they left the hot rollers, placed in 100 ml. of sterile water, and after shaking, plated, gave no colonies on 1 ml. plates. In other words, the paper was practically sterile on its surface.

Milk sanitarians should inspect paper mills and check on the pulp. In the first place, the water used for diluting the pulp usually comes from polluted streams or lakes.

Some paper mills have proper sanitary control over the water supply while other paper mills have not.

In the suggested standards for paper as printed in *The Milk Sanitarian*, Volume 6, pages 11-13, it is suggested that paper milk containers be made from virgin chemical or mechanical pulp and that prior to moisture-proofing the paper shall not have a count exceeding 500 colonies per gram of the disintegrated paper. Such a standard is extremely liberal. A quart paper container when dry weighs about 42 grams. A container made from such paper would harbor 21,000 in its walls.

When paper is made by the sulphite process and is bleached and is made in a continuous operation—that is, not stored in moist condition for some days—the bacterial population of the paper is extremely low.

A number of containers were beaten in a small glass churn until reduced to pulp. About 1500 ml. of sterile water were used for one container. Ten plates were poured, one ml. in each. Five plates had no colonies, two plates had one colony each, and three plates had two colonies each. Such counts mean practically nothing, except that the paper was practically sterile. In another test, twenty quart containers were broken up and jammed into a three-gallon milk can containing six liters of sterile water. After soaking for 20 minutes and shaking vigorously, one ml. of the water was plated in each plate. After two and one-half hours of soaking another set of plates was made. Again the plates gave counts of one or two colonies or none. The calculations from such counts gave 2.3 bacteria per square inch of surface.

Where paper is made for milk containers some medical examination of the worker handling and packing the paper should be required. Some mills have such standards. Occasional inspection of the premises and of the bundles of the paper are desirable. The Chicago Carton Company, where the containers are cut and printed, was found in an excellent sanitary condition. If paper containers become extensively used, such an establishment should be visited and inspected by milk sanitarians.

So far in our study, most of the experiments have been carried on with the Pure-Pak paper container. As stated already, the containers are shipped to the milk plant from the carton company and are paraffined by the machine at

the milk plant. The machine is set as to time but the temperature of the paraffin can be set as desired.

The bacteriological condition of the paraffined containers was determined at first by the standard methods recommendations. The containers were passed through the machine and were sealed, but no milk was put into them. At the laboratory they were opened; one hundred ml. of sterile water were poured in and after a thorough shaking, two plates—each containing one ml. of the rinse water—were plated. Most of these empty bottles were collected during two months, in which time the machine was used for bottling milk. Each day the first six bottles passing through the machine and also the last six after the milk was bottled, were taken for the test. Space does not permit the giving of the counts of individual containers, of which several hundred were examined. Most of the plates had one, sometimes two, and more often no colonies. The results forced us to the conclusion that the containers were practically sterile and that the standard method is no good for this purpose.

The following method was adopted after this. About 25-30 ml. of nutrient agar were poured directly into the container. After some agitation to bring all the surface in contact with the agar, the containers were incubated. To count the colonies the container was cut open and the slab of agar was placed on the counting glass, and the colonies were counted.

One hundred and ten bottles paraffined at 170° F. had all together 100 colonies; ninety-three containers paraffined at 180° F. had 49 colonies; ninety-eight containers paraffined at 185° F. had 29 colonies; and ninety-five containers paraffined at 190° F. had 53 colonies. Part of the time the standard agar plus one per cent lactose was used as nutrient agar and most of the time the tryptone dextrose agar was used. The conclusion drawn from these tests is that when sulphite-process bleached pulp is used for the paper, it is practically sterile, and when the containers are paraffined they also are practically sterile. It made no difference whether they were paraffined at 170, 180 or 190 degrees F.

Another group of 1,000 bottles from a different source was examined. The results of that examination were very similar. In this group of containers 45 percent of them developed no colonies, 38 percent of them had spreaders—

that is, spore producers—and 25 percent of the containers had paper defects. Of those with paper defects, 71 percent harbored spreaders. In Table I are given the colony

Table I

Twelve Worst Containers Among 1000 Examined

Number	Total Count	Spreader	Defects in Paper
1	309	+	+
2	150	+	—
3	126	+	—
4	118	+	+
5	111	+	+
6	110	+	+
7	99	+	+
8	67	+	+
9	64	+	+
10	63	+	—
11	54	+	+
12	49	+	+

+ Present — absent

counts of the twelve worst containers and the presence of spreaders and paper defects is indicated. The paper defects manifested themselves as brownish patches in the paper under the paraffin and appeared to be caused by some hydrolytic change in the pulp.

Taken as a whole, as far as can be determined, the paper milk containers after they are paraffined are practically free from bacteria.

The paraffining of the containers is done primarily for the purpose of making the paper impervious to the milk. Since paraffining must be done at relatively high temperature the process also involves a bactericidal treatment.

This phase of the study had been conducted both in the milk plant and in the laboratory. For this purpose the containers were impregnated with a bacterial suspension of a given organism. For the most part a variety of *B. prodigiosus* was used. In the first part of this study the containers were dipped in a bacterial suspension usually having about 200,000,000 plate count. In dipping the containers they absorbed on the average about seven ml. of

the suspension. As soon as the containers were dry enough they were paraffined. To test for the presence of the organisms, about 30 ml. of nutrient agar were poured into each container and thoroughly shaken, then incubated. Many hundreds of containers were treated in this manner. The temperatures of 160, 170, 175, 180, 185 and 190 degrees F. were tried. Very irregular results were obtained. While most of the containers were free from the organism, invariably there would be a few containers in which the organisms were present. This was true of all the temperatures.

In one experiment the suspension had only 2,000,000 bacteria per ml. Of the three hundred bottles paraffined at 170°, 180° and 190° F. none had any of the bacteria present.

2653 The dipping of the paper containers in a suspension containing so many bacteria was discontinued. Instead of dipping, the containers were inoculated by putting one's hand in the suspension and then rubbing the inside walls of the containers with the hand. In one run six hundred containers were inoculated in this manner and were paraffined at 160°, 170° and 180° F.

Of the two hundred bottles paraffined at 160° F., nine were positive, of those paraffined at 170° F., one was positive, and of those paraffined at 180° F., two were positive.

Another method of inoculating the containers was tried. The operator handling the containers from the cartons in which they were shipped to the paraffining machine infected his hands in the bacterial suspension and then handled the containers. In one test, six hundred containers were paraffined, after being handled in this manner: two hundred at each of 170°, 180° and 190° F. All the containers paraffined at 170° F. and at 180° F. were negative. Of the two hundred containers paraffined at 190° F., one hundred and ninety-nine were negative and one was positive.

In these tests in which inoculated containers were paraffined, and a large number of these were paraffined in each test, invariably one or two containers would be positive, and that was irrespective of the temperature used. Whether the bacteria survived the paraffining or whether in handling such rich suspension an occasional accidental contamination took place, it is difficult to conclude. The heavier the inoculation the more positive cases appeared.

The study of paraffining the paper was also carried on

at the laboratory. Here small strips of paper, $\frac{1}{4}$ by $2\frac{1}{4}$ inches, were used. After the strips of paper were paraffined they were dropped in a test tube containing 15 percent milk and 85 percent water. After incubation of several days they were examined for the appearance of color. The results from one of the runs, given in Table II, are typical. In Table III, results are given from one of

Table II

Survival of *B. prodigiosus* on Paper Strips $\frac{1}{4}$ " x $2\frac{1}{4}$ ". Strips Dipped in Bacterial Suspension of 20,000,000 Cells Per Ml.

Seconds Exposed	10	20	30	45	60
160° F.	+++	+++	++-	+++	+++
170° F.	+++	+++	++-	---	---
180° F.	++-	+++	---	---	---
190° F.	++-	++-	---	---	---
200° F.	+-	+-	---	---	---
212° F.	+-	---	---	---	---

+ Bacteria survived.
- None found.

Table III

Killing of *B. coli* on Paper by Dipping Inoculated Strips of Paper in Hot Water. Each Strip $\frac{1}{4}$ " x $2\frac{1}{4}$ " Received 5,000,000 Bacteria.

Exposure Seconds	130° F.	140° F.	145° F.	150° F.
10	+++	+++	+++	---
20	+++	+++	+++	---
30	+++	+++	++-	---
45	+++	++-	---	---
60	+++	++-	---	---

the runs in which the inoculated strips of paper were exposed to sterile hot water instead of paraffin. The results show that the hot water treatment is more effective than the paraffin treatment. The difference is very pronounced. Water at 150° F. is more effective than paraffin at 190° F.

Tests were also made to determine how long the bacteria will survive on the impregnated strips of paper. Heavily inoculated strips of paraffined paper were examined daily. No living bacteria were found on the strips after the seventh day. When the unparaffined paper strips were inoculated and examined in the same manner no viable bacteria were present after the sixth day.

The tentative standards suggested in the report from the conference on paper milk containers are good. Perhaps they should be somewhat more exacting. The milk sanitarians should inspect and develop some score card for the mill where the paper is made. Health certificates of the employees handling the paper should also be made. Health certificates of the employees handling the paper should also be required, both in the paper mill, in the carton manufacturing company, and also in the milk plant wherever the milk containers are handled by hands. Inspection of the paper containers at the milk plant is necessary not only as to bacterial condition but as to appearance. The containers that are paraffined in a factory and shipped, ready to be filled, need to be well packed and protected in the shipment and at the milk plant. Also a proper storage room, free from insects and vermin and dust, must be provided at the plant.

Paraffining the containers at 185° F. for 30 seconds, when the containers are protected as above suggested, will result in a practically sterile container, and a container that is safe to use. However, entire dependence on paraffining to insure complete sterility of the container may not be sufficient.

2654

PLAINTIFF'S EXHIBIT NO. 63..

Are Paper Milk Containers Sanitary?

M. J. Prucha

Department of Dairy Husbandry

University of Illinois

Urbana, Illinois

"Are paper milk containers sanitary?" This question is of the same type as the one asked of a married man, "Have you ceased beating your wife? Answer yes or no." If the question of this paper reads, "Can paper milk containers be made so that they are sanitary?" then I can answer "Yes" without any hesitation.

Certain studies on this question have been carried on in our laboratories for the last twenty months. It is the purpose of this paper to present some of the results of this study to prove the above answer, namely, that paper milk containers can be made so that they are sanitary.

At this point it will be desirable to define a "sanitary container." While there will probably be differences of opinion among milk sanitarians, we offer the following definition: A sanitary container is one that is clean, free from visible dirt, that is protected against the contamination of harmful microorganisms, especially the disease-producing organisms, and that has as few bacteria of the harmless miscellaneous types as possible.

In the usual examinations of containers, such as glass milk bottles, attention is paid to the cleanness of the containers and then they are examined bacteriologically for the total number of bacteria. A hunt for disease bacteria is not attempted in the routine examination. We depend on preventive measures to keep the disease-producing bacteria out of the containers.

Our bacteriological study has dealt primarily with the number of bacteria in the paper milk containers at the different stages of their manufacture, and to some extent, observations were also made as to kind of bacteria.

Number of Bacteria in the Paper Board from Which
Milk Containers Are Made .

It has been felt by some sanitarians that the number of bacteria enmeshed in the paper board is an indication of its sanitary condition. In Table 1 are given results from

70 examinations of paper board coming from five different paper mills. Sixty-six of the 70 samples had some bacteria, ranging from 3 to 7,493 per gram of the paper. Four samples gave no growth on petri dishes.

2655 From these tests it is evident that paper can be made which is practically free from bacteria of any kind. Virgin pulp, freshly bleached and diluted with properly chlorinated water will give paper board practically free from bacteria.

The bacteria that are usually found enmeshed in the paper board are almost exclusively spore-producing organisms. According to J. R. Sanborn (1), *B. subtilis*, *B. cereus*, *B. mycoides*, *B. tumescens*, *B. megatherium* are the usual organisms found. Non-spore forming organisms are found only occasionally. These may be due to subsequent contamination, after the paper is made. The process of paper making is such that the paper is exposed to very hot steel rollers. Experiments conducted by E. Wheaton (2), showed that non-spore bearing organisms do not survive on the paper when the paper is inoculated heavily before it passes over the hot rollers.

Another point of sanitary importance regarding the paper board is the fact that the non-spore bearing organisms do not remain viable very long on the paper. In Table 2 are given results from one of the tests. In these tests plaques of paper were heavily inoculated by being dipped in a bacterial suspension, then placed in open petri dishes and kept at room temperature. At intervals they were examined for the presence of the inoculating organisms. Organisms like *E. coli* and *B. prodigiosus* usually died in about four days. *Staphylococcus aureus* remained alive a few days longer. This tendency for the microorganisms to die on the paper might be called "self-purification".

As the paper board leaves the hot rollers it is cut either in sheets of desired size or wound into rolls and sent to the carton factory. Here the containers are designed, cut, printed, and edges sealed with adhesive. In the case of the Canco and the Sealright containers, they are fabricated and paraffined at the carton factory and are shipped to the milk plant ready to be filled with milk and milk products.

The Pure-Pak containers are partly fabricated at the carton factory. Their shaping, the sealing of their bottoms and the paraffining are done at the milk plant. Since the

Pure-Pak machine was installed at the University Creamery an opportunity was afforded to examine the containers after they were shaped and their bottoms sealed and before they were paraffined. One hundred and twenty-eight containers were examined for bacteria. The results are shown in Table 3. In making the examination each container was rinsed with 100 ml. of sterile water and one ml. was plated in each of two plates. No colonies developed on two plates from 25 containers. From another 25 containers only one colony appeared on one of the two plates. Less than 10 colonies developed on the plates from 121 of the 128 containers.

The paper for these containers was handled at the paper mill, was transported to the carton factory, and there the containers were handled, exposed to the air and then transported to the milk plants. Here they were again handled and sealed with an adhesive. The results in Table 3 represent the contamination from all the sources to which 2656 the paper and the containers were exposed as they passed on their journey in the paper mill and from the paper mill to the point at which they were to enter the hot paraffine.

The adhesives that were used were frequently examined. The examination consisted of mixing 10 grams of the adhesive in 100 ml. of sterile water and then pouring 10 plates, each receiving 1 ml. of the mixture. As a rule the plates did not develop any colonies. The adhesives used for sealing these containers, therefore, did not contaminate the containers.

The next step in this study was the examination of the paraffined containers. As already stated, the Pure-Pak containers are paraffined at the milk plant, while the Canco and the Sealright containers are paraffined at the carton factory and are shipped to the milk plant, ready to be filled with milk. All the three types of the containers were examined. In Tables 4, 5 and 6 are presented the results of such examination.

The Pure-Pak containers were examined by rinsing each container with 100 ml. of water and pouring two plates, each containing 1 ml. of the rinse water. The Canco containers were examined by pouring into each container about 20 ml. of agar and leaving the agar in the container. After incubation the colonies were counted. The Sealright containers were examined by rinsing each container with 10 ml. of water and plating all the rinse water in three plates.

The outstanding result of this examination is the fact that in a large percentage of the containers no bacteria were found. Another large percentage of the containers gave so few colonies that it could be interpreted that the occasional colony did not come from the container but was an external contamination. Tanner (3) reports that over 80 per cent of the 7,000 Canco containers examined were found free from bacteria.

Complete elimination of bacteria from dairy utensils is rather difficult to accomplish in the routine operations in the milk plant. This is recognized by the sanitarians. In the Sixth Edition of the Standard Methods for Milk Analysis the following statement appears on page 58: "In testing milk bottles, 100 ml. of sterile water is added to each bottle. After it is vigorously shaken, 1 ml. of the rinse water is transferred to each of two petri dishes and 10 ml. of agar is poured in each petri dish. . . .

"Bottles developing not more than 1 colony per ml. capacity . . . shall be considered satisfactory. While this standard may be so severe that it will not be met in all instances in regions that are just beginning to work in this field, it has been found by experience that properly sterilized containers will meet the standard specified. The counts from poorly sterilized containers (glass bottles) usually greatly exceed this figure. Under these conditions, it is recommended that the enforcement of this standard be lenient at first."

The capacity of quart bottles is 950 ml. Therefore the standard is 950 bacteria per container. Applying this standard to the paper milk containers examined in this study, it is seen that only two Pure-Pak containers out of 395 examined did not meet the standard. Of the 1,155 Canco containers examined, only one did not meet the standard, and of the 226 Sealright containers, 11 did not meet the standard.

2657 S. V. Layson, E. G. Huffer and J. M. Brannon examined 454 glass milk bottles collected from 25 different milk plants. The results are summarized in Table 7. One hundred and eighteen bottles had no bacteria, 126 bottles had between 100 and 1,000 bacteria and 210 had more than 1,000 and hence did not meet the standard. Some of the bottles harbored several million bacteria. These bottles were collected from dairies well established in business and operating under certain regulations. The bottles were picked up at random at the point they were to be

used for milk and were supposed to be cleaned and sterilized.

The above reference to glass bottles should not be construed as a reflection on glass bottles. In properly managed and technically controlled milk plants, the bacterial population in glass bottles can and is effectively controlled.

The results of the bacteriological examination of the paper milk containers are conspicuous for the absence of bacteria in most of the containers and for the absence of coliform organisms. This has been accomplished by the industries involved in the manufacture without any official sanitary regulations. With the establishment of certain requirements it will be possible to make further improvements.

It is hoped that some reasonable sanitary regulations will be agreed upon to guide the industries in the manufacture of the paper board, in the handling of the paper and the containers, in the fabrication of the containers and in the storage and transportation of the containers, so that through preventive measures all danger of contamination by harmful bacteria can be assured, as well as the control and elimination of the non-pathogenic bacteria.

To many milk sanitarians the problem already appears to be practically solved, because some paper milk containers have already been accepted by many Boards of Health and other health agencies as satisfactory milk containers from the sanitary standpoint.

Certain of the milk containers have been approved by the Ministry of Health of Great Britain and the local authorities are also empowered to approve of cartons submitted to them for use both with ordinary milk and milk sold under special designation. Here in the United States the Council on Foods of the American Medical Association has voted to accept milk distributed in the single service type of certain containers. Also the American Association of Medical Milk Commission has approved the closure on the single service paper containers of certain types.

The paper milk containers are here. They are here to stay. To what extent they will be used in the dairy industry will probably be largely determined by economic factors and not by sanitary restrictions.

References

- (1) Sanborn, J. R., Suitable Paper Wrappers and Containers for Foods. *American Journal of Public Health*. Vol. 28. No. 5. 1938.
- (2) Wheaton, E. Unpublished data.
- (3) Tanner, F. W. Unpublished data.

2658 Table 1.—Number of Bacteria Enmeshed in the Body of the Paper Bacteria per Gram of Paper

Sample No.	Sample No.	Sample No.
1. 7493	25. 440	49. 63
2. 2570	26. 320	50. 60
3. 2550	27. 253	51. 57
4. 2400	28. 253	52. 33
5. 2350	29. 240	53. 33
6. 2173	30. 203	54. 20
7. 2160	31. 193	55. 20
8. 2070	32. 190	56. 13
9. 2000	33. 183	57. 13
10. 1880	34. 183	58. 10
11. 1833	35. 153	59. 10
12. 1733	36. 137	60. 7
13. 1560	37. 133	61. 7
14. 1490	38. 133	62. 3
15. 1437	39. 123	63. 3
16. 1120	40. 120	64. 3
17. 1000	41. 120	65. 3
18. 720	42. 117	66. 3
19. 680	43. 100	67. 0
20. 560	44. 93	68. 0
21. 560	45. 91	69. 0
22. 560	46. 73	70. 0
23. 560	47. 70	
24. 440	48. 67	

Table 2.—Survival of Viable Bacteria on Paper Board
Plaques of paper board heavily inoculated with *B. prodigiosus*

	Freshly inoculated	+++
		+++
	5 hrs. old	+++
		+++
16	" "	+++
		+++
28	" "	+++
		+++
40	" "	+++
		+++
52	" "	+--
		--
87	" "	---

98	" "	---

142	" "	---

161	" "	---

+ viable bacteria survived

— no viable bacteria survived

Each sign + or — represents one plaque

2659 Table 3. Bacteriological Condition of Paper Milk Containers Before Being Paraffined

No. of Colonies on Duplicate Plates.					
1. 0-0	27. 0-1	53. 1-1	79. 1-2	105. 3-4	
2. 0-0	28. 0-1	54. 1-1	80. 1-2	106. 3-4	
3. 0-0	29. 0-1	55. 1-1	81. 0-3	107. 3-5	
4. 0-0	30. 0-1	56. 1-1	82. 0-3	108. 2-6	
5. 0-0	31. 0-1	57. 1-1	83. 0-3	109. 4-5	
6. 0-0	32. 0-1	58. 1-1	84. 0-3	110. 4-5	
7. 0-0	33. 0-1	59. 1-1	85. 2-2	111. 4-5	
8. 0-0	34. 0-1	60. 1-1	86. 2-2	112. 4-5	
9. 0-0	35. 0-1	61. 0-2	87. 2-2	113. 5-5	
10. 0-0	36. 0-1	62. 0-2	88. 2-2	114. 4-6	
11. 0-0	37. 0-1	63. 0-2	89. 1-3	115. 4-6	
12. 0-0	38. 0-1	64. 0-2	90. 0-4	116. 3-7	
13. 0-0	39. 0-1	65. 0-2	91. 0-4	117. 5-8	
14. 0-0	40. 0-1	66. 0-2	92. 0-4	118. 5-8	
15. 0-0	41. 0-1	67. 1-2	93. 2-3	119. 5-8	
16. 0-0	42. 0-1	68. 1-2	94. 2-3	120. 8-8	
17. 0-0	43. 0-1	69. 1-2	95. 2-3	121. 8-9	
18. 0-0	44. 0-1	70. 1-2	96. 2-3	122. 8-10	
19. 0-0	45. 0-1	71. 1-2	97. 2-3	123. 9-10	
20. 0-0	46. 0-1	72. 1-2	98. 2-3	124. 9-11	
21. 0-0	47. 0-1	73. 1-2	99. 1-4	125. 7-13	
22. 0-0	48. 0-1	74. 1-2	100. 3-3	126. 11-15	
23. 0-0	49. 0-1	75. 1-2	101. 2-4	127. 13-15	
24. 0-0	50. 0-1	76. 1-2	102. 2-4	128. 17-19	
25. 0-0	51. 1-1	77. 1-2	103. 1-5		
26. 0-1	52. 1-1	78. 1-2	104. 1-5		

Table 4.—Number of Bacteria in Pure-Pak Paraffined Paper Milk Containers

No. of containers	No. of colonies on duplicate plates
99	0-0
110	0-1
76	1-1
56	1-2
33	2-2
13	3-4
1	4-4
3	4-5
1	5-5
3	5-6
1	7-8
1	10-11
1	20-21

2660 Table 5.—Bacterial Condition of 1155 American Can Containers

Number of containers	No. of bacteria in each container
568	No Colony
323	1 "
84	2 "
118	2-10 "
43	10-50 "
11	50-100 "
6	100-200 "
1	309 "
1	1500 "

Table 6.—Bacteriological Condition of Sealright Containers

Number of containers	No. of bacteria in each container
3	0
13	1
10	2
79	2-10
62	10-50
17	50-100
21	100-500
9	500-1000
10	1000+
1	5300

Table 7.—Bacterial Count Found in Glass Bottles
(Counts per bottle, not per ml.)

No. of bottles	Bacteria per bottle
118	0
44	100
27	200
25	300-400
30	400-1,000
49	1,000-10,000
58	10,000-100,000
35	100,000-1,000,000
18	1,000,000+

2661

PLAINTIFF'S EXHIBIT 64.

**United States of America
The State of (Cut) Michigan**

Michigan Corporation and Securities Commission

To All to Whom These Presents Shall Come:

I, Carl A. Olson, Commissioner of the Michigan Corporation and Securities Commission, Do Hereby Certify That Articles of Incorporation of Fieldcrest Dairies, Inc. were duly filed in this office on the 5th day of November A. D., Nineteen Hundred and Thirty-Seven and the said Company is authorized to commence its business in conformity with Act 327, Public Acts of 1931.

In Testimony Whereof, I have hereunto set my hand and affixed the Seal of the Commission in the City of Lansing, this 5th day of November A. D. 1937.

Carl A. Olson,
Commissioner.

(Seal)

Filed Apr 27 1940 Hoyt King, Clerk.

2662

**Articles of Incorporation
of**

**Fieldcrest Dairies, Inc.
(Company, Corporation or Incorporated)**

These Articles of Incorporation are signed and acknowledged by the incorporators for the purpose of forming a corporation for profit under the provisions of Act No. 327 of the Public Acts of 1931, known as the Michigan General Corporation Act, as follows:

Article I.

The name of this corporation is Fieldcrest Dairies, Inc.

Article II.

The purpose or purposes of this corporation are as follows: to buy, sell, deal in, manufacture, process, cut, store and ship cream, milk, butter, cheese, ice-cream, ice-cream mix, sugar, condensed milk, powdered milk, evaporated milk, malted milk, distilled water, milk products and by-products, ice and all such other articles as may be necessary or may be conveniently used in connection with the aforesaid mentioned business or businesses; to own, lease and manage, directly or through subsidiaries, dairies and dairy farms, creameries and cheese factories, and conduct a general manufacturing and merchandising business.

(In general to carry on any business in connection therewith and incident thereto not forbidden by the laws of the State of Michigan and with all the powers conferred upon corporations by the laws of the State of Michigan.)

Article III.

Location of the corporation is Detroit, in the County of Wayne, State of Michigan.

Post Office address of registered office in Michigan is 1611 National Bank Building, Detroit, Mich.

Article IV.

The total authorized capital stock is

(1) Common 2500 shs. Par Value \$10.00 per share.

(3) The following is a description of each class of stock of the corporation with the voting powers, preferences and rights and qualifications, limitations or restriction thereof:

Each share of stock shall have equal voting power, and the holders thereof shall be entitled to share, equally and ratably, in all dividends.

2663 The amount of paid in capital with which this corporation will begin business is \$1,000.00. (This must not be less than \$1,000.00)

Article V.

The names and places of residence or business of each of the incorporators and the number and class of shares subscribed for by each are as follows:

Names	Residence or Business Address	Number of Shares		
		Common	Preferred	Non-Par
Fred Dye	1611 National Bank Bldg. Detroit, Michigan	100	none	none

Article VI.

The names and addresses of the First Board of Directors are as follows:

Name	Address
Fred Dye	1611 National Bank Building, Detroit, Mich.
Edna E. Martin	1611 National Bank Building, Detroit, Mich.
Jarl A. Andeer	1611 National Bank Building, Detroit, Mich.

Article VII.

The term of this corporation is fixed at thirty years.
2664 In Witness Whereof the incorporator has signed these articles of Incorporation this 21st day of October A. D. 1937.

Fred Dye.

State of Michigan }
County of Wayne } ss.

On this 21st day of October A. D. 1937 before me, a Notary Public in and for said County, personally appeared Fred Dye known to me to be the persons named in, and who executed the foregoing instrument, and severally acknowledged that they executed the same freely and for the intents and purposes therein mentioned.

Quin E. Benner
*Notary Public for Wayne County,
State of Michigan.*

My commission expires 2/15/38.

1612

Plaintiff's Exhibit No. 64.

2665

Original

**(Corporation for Pecuniary Profit)
Articles of Incorporation**

of

Fieldcrest Dairies, Inc.

Under Act 327, Public Acts of 1931.

(This blank prepared by Michigan Corporation and Securities Commission.)

Filed Nov 5 1937.

This is to certify these articles of incorporation to be a true copy of the original on file in this office.

(Seal)

**Carl Olson
Commissioner**

Michigan Corporation and Securities Commission Detroit Office.

Received No. 5, 1937 Michigan Corporation and Securities Commission Detroit Office.

Detroit Office Michigan Corporation and Securities Commission.

Nov. 5, 1937.

**H. W. & dr
Compared by**

2666

PLAINTIFF'S EXHIBIT 65.

Certificate Number 2631

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**State of Illinois
Office of
The Secretary of State
(Cut)**

To all to whom these Presents Shall Come, Greeting:

Whereas, Fieldcrest Dairies, Inc., incorporated under the laws of the State of Michigan has filed in the Office of the Secretary of State duly authenticated evidence of its incorporation and an application for Certificate of Authority to transact business in this State, as provided by "The Business Corporation Act" of Illinois in force July 13, A. D. 1933.

Now Therefore, I, Edward J. Hughes, Secretary of State of the State of Illinois, by virtue of the powers and duties vested in me by law, do hereby issue this Certificate of Authority and attach thereto a copy of the application of the aforesaid corporation.

In Testimony Whereof, Thereto set my hand and cause to be affixed the Great Seal of the State of Illinois.

Done at the City of Springfield this 29th day of November A. D. 1937 and of the Independence of the United States the one hundred and 62nd.

(Seal)

**Edward J. Hughes
Secretary of State.**

2667 Book 1145 Page 114

Date Paid	11-29-37
Initial Fee	\$.50
Francise Tax	\$ 6.67
Filing Fee	\$20.00
Penalty	\$
Clerk M S L	

Form J

(To be filed in duplicate)

Application for License of Foreign Corporation

November 24, 1937

To Edward J. Hughes, Secretary of State, Springfield, Illinois:

Fieldcrest Dairies, Inc., a corporation organized and existing under and by virtue of the laws of the State of Michigan desiring admission into the State of Illinois, for the purpose of transacting business or exercising its corporate powers or franchises, hereby makes application for a certificate of authority and submits the following statement pursuant to "The Business Corporation Act," of Illinois.

First—The above corporation was duly incorporated under the laws of the State of _____ on the 5th day of November. A. D. 1937 for a term of 30 years.

Second—The location of the principal office as designated in the charter is Detroit, Michigan. The locations of its principal places of business are Detroit, Michigan, Chicago, Illinois.

Third—The address of the proposed registered office in the State of Illinois will be located at 20 North Wacker Drive, in the city of Chicago, Illinois, and the name of its proposed registered agent in this State at such address is: H. M. Dean.

Fourth—The corporation is transacting business and qualified under the foreign corporation laws of the following states and countries other than Illinois: Detroit, Michigan.

Fifth—The names of its officers and directors and their addresses are as follows:

Name	City and State	Street and No.
President S. E. Dean,	Chicago, Ill.	20 North Wacker Drive
Secretary H. M. Dean,	Chicago, Ill.	20 North Wacker Drive
Director S. H. Dean,	Chicago, Ill.	20 North Wacker Drive
Director A. T. O'Connor,	Chicago, Ill.	20 North Wacker Drive

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Sixth—The purpose or purposes for which it was organized which it proposes to pursue in the transaction of business in this State is: to buy, sell, deal in, manufacture, process, cut, store and ship cream, milk, butter, cheese, ice cream, ice-cream mix, sugar, condensed milk, powdered milk, evaporated milk, malted milk, distilled water, milk products and by-products, ice and all such other articles as may be necessary or may be conveniently used in connection with the aforesaid mentioned business or businesses; to own, lease and manage, directly or through subsidiaries, dairies and dairy farms, creameries and cheese factories, and conduct a general manufacturing and merchandising business.

2669 Seventh—The number of shares which it has authority to issue, itemized by classes, par value of shares, shares without par value, and series, if any, within a class, is:

Class	Series (if any)	Number of Shares	Par value per share or statement that shares are without par value.
one—common	none	2500	par value \$10—

Eighth—The number of its issued shares, itemized by classes, par value of shares, shares without par value, and series, if any, within a class, is:

Class	Series (if any)	Number of Shares	Par value per share or statement that shares are without par value.
one—common	none	100	par value \$10—

Ninth—The amount of stated capital and the amount of paid in surplus of the corporation as defined by "The Business Corporation Act" of Illinois, is:

Stated Capital	\$1,000.00
Paid in Surplus	none

Total	\$1,000.00
-------	------------

*Tenth—Give an estimate of the total value of all the property of the corporation for the following year

\$1,000.00

Eleventh—Give an estimate of the total value of all the property of the corporation for the following year that will be located in Illinois

\$1,000.00

Twelfth—State the estimated total business of the corporation to be transacted by it everywhere for the following year

\$15,000.00

Thirteenth—State the estimated annual business of the corporation to be transacted by it at or from places of business in the State of Illinois

\$20,000.00

Fourteenth—

Interrogatories:

- (a) Is the corporation actually transacting business at the present time in the State where it was organized?
NO
- (b) From what office will the affairs of the corporation be managed? Chicago, Illinois at 20 North Wacker Drive offices
- (c) To what office or offices will all contracts with the corporation be forwarded for final acceptances? Chicago, Illinois
- (d) At what office or offices will the directors and stockholders meeting be held? Chicago, Illinois
- (e) The number of shares of the capital stock of all classes owned by residents of Illinois is: 100 shares
- (f) The number of shares of capital stock of all classes owned by non-residents of Illinois is: no shares
- (g) Is the corporation transacting business in this State at this time? no

* Property as used in this application shall apply to all property of the corporation, real, personal, tangible, intangible, or mixed without qualification.

- (h) If your answer is in the affirmative, state the exact date on which it commenced to transact business in Illinois.

Book 1145 Page 116

2670 In Witness Whereof, the undersigned corporation has caused this report to be executed in its name by its acting President attested by its duly elected Secretary, this 24th day of November, A. D. 1937.

Fieldcrest Dairies, Inc.,
(Exact Corporate Title)
By S. E. Dean, Jr.

(Seal)

President.

H. M. Dean
Secretary.

State of Illinois }
County of Cook } ss.

I, William Jacobs a Notary Public, do hereby certify that on the 24th day of November, A. D. 1937, personally appeared before me S. E. Dean, Jr., who declares he is President of the corporation, executing the foregoing document, and being first duly sworn, acknowledged that he signed the foregoing document in the capacity therein set forth and declared that the statements therein contained are true.

In Witness Whereof, I have hereunto set my hand and seal the day and year before written.

William Jacobs
Notary Public.

(Seal)

Endorsement: Form J Box _____ File _____ Foreign Corporations Application for License of Foreign Corporation. Fieldcrest Dairies, Inc. Filed Nov 29 1937 Edward J. Hughes Sec'y of State. Filing Fee \$20.00, plus license fee and franchise tax.

NOTICE TO CORPORATIONS

Every incorporated company, other than banking, building and loan, and insurance companies, religious corporations and corporations organized not for pecuniary profit are required to make and file in the office of the Secretary of State in February of each year an annual report and severe penalties are inflicted for failure to do so.

Corporations are also required to file all amendments to their articles of incorporation.

The certificate of incorporation and all amendments thereto must be recorded in the office of the County Recorder of the County in which the business office of the corporation is located within fifteen days from the issuance thereof.

2672 Certificate of Authority of Fieldcrest Dairies Inc
Mail to: F. A. Gariepy 1 N. LaSalle Chicago State
of Illinois, Office of the Secretary of State 12122922
State of Illinois Cook County ss. No. Filed for Record
1938 Feb 23 PM 2 02 1145 and recorded in Book
Page 113 Recorder Edward J. Kaindl Book 1145 Page 117

Plaintiff's Exhibit 68



1621

Plaintiff's Exhibit 67



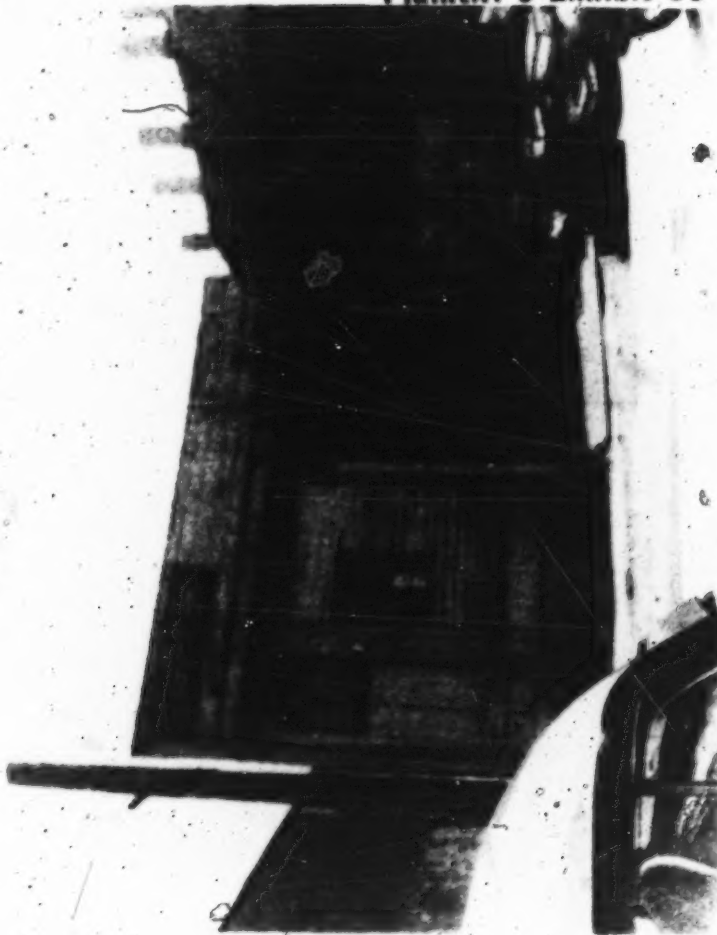
1623

Plaintiff's Exhibit 68

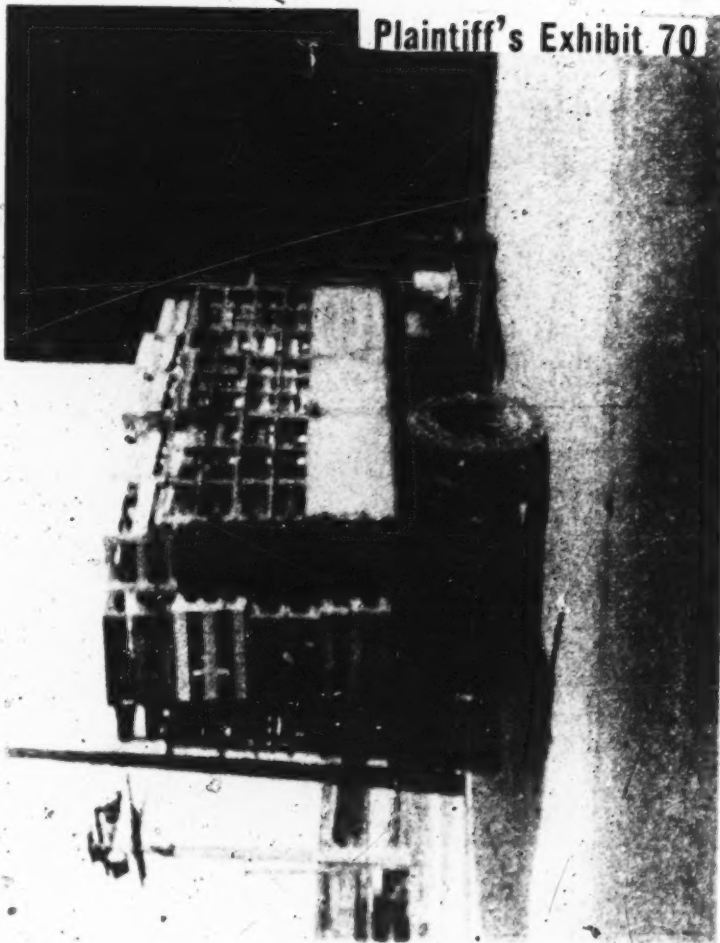


1625

Plaintiff's Exhibit 69

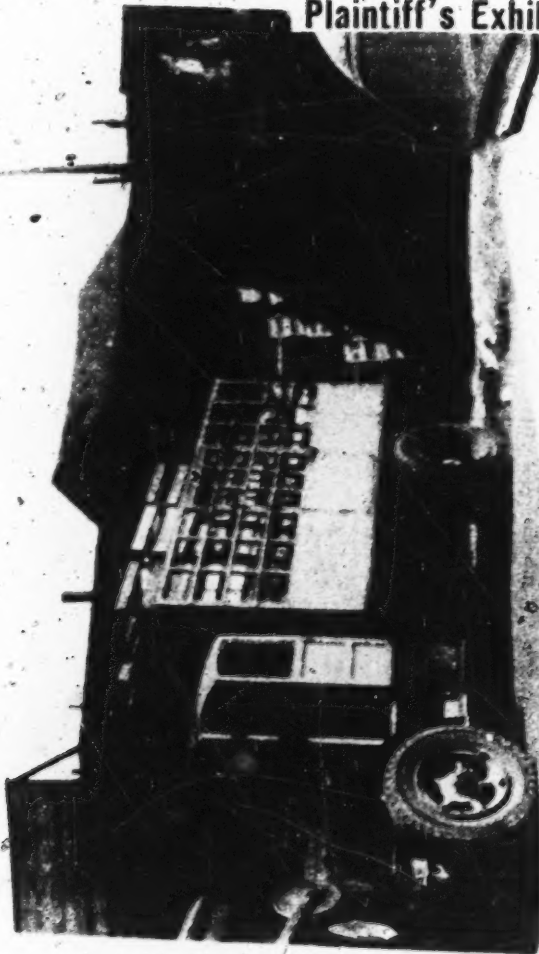


Plaintiff's Exhibit 70



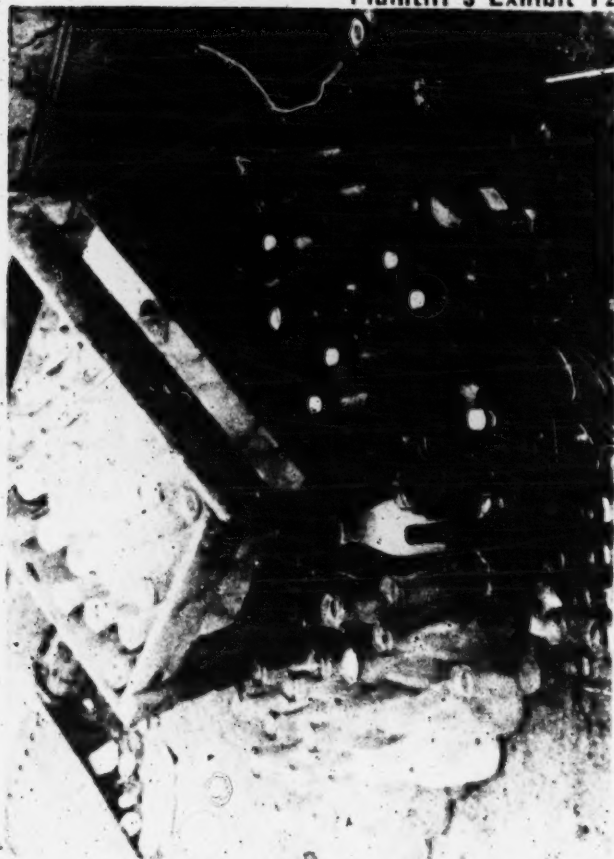
1629

Plaintiff's Exhibit 71

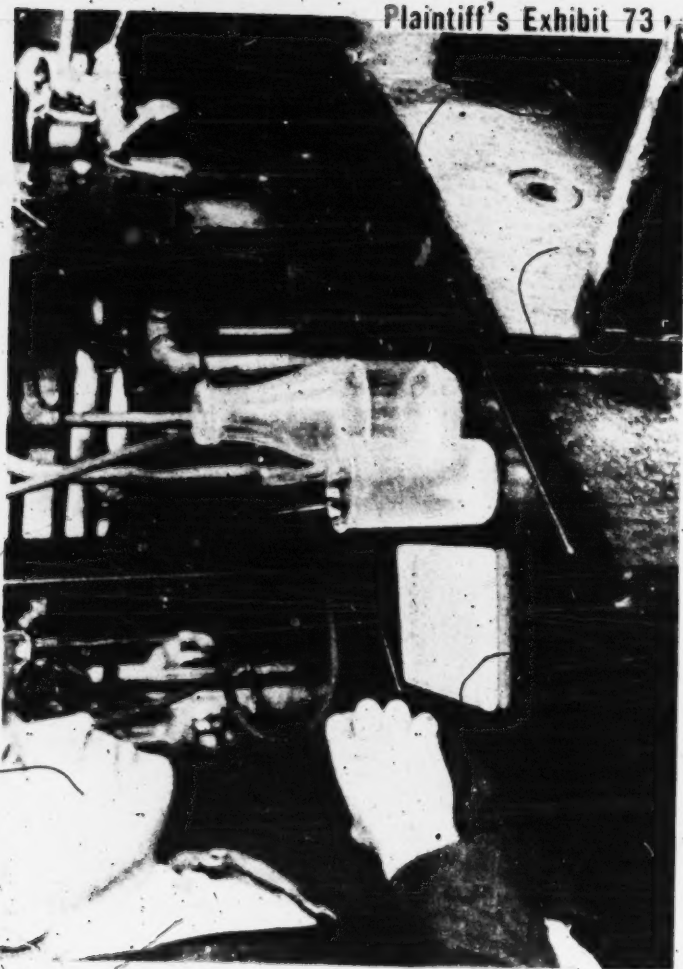


1631

Plaintiff's Exhibit 72



Plaintiff's Exhibit 73



1685

Plaintiff's Exhibit 74



U
1637

Plaintiff's Exhibit 75

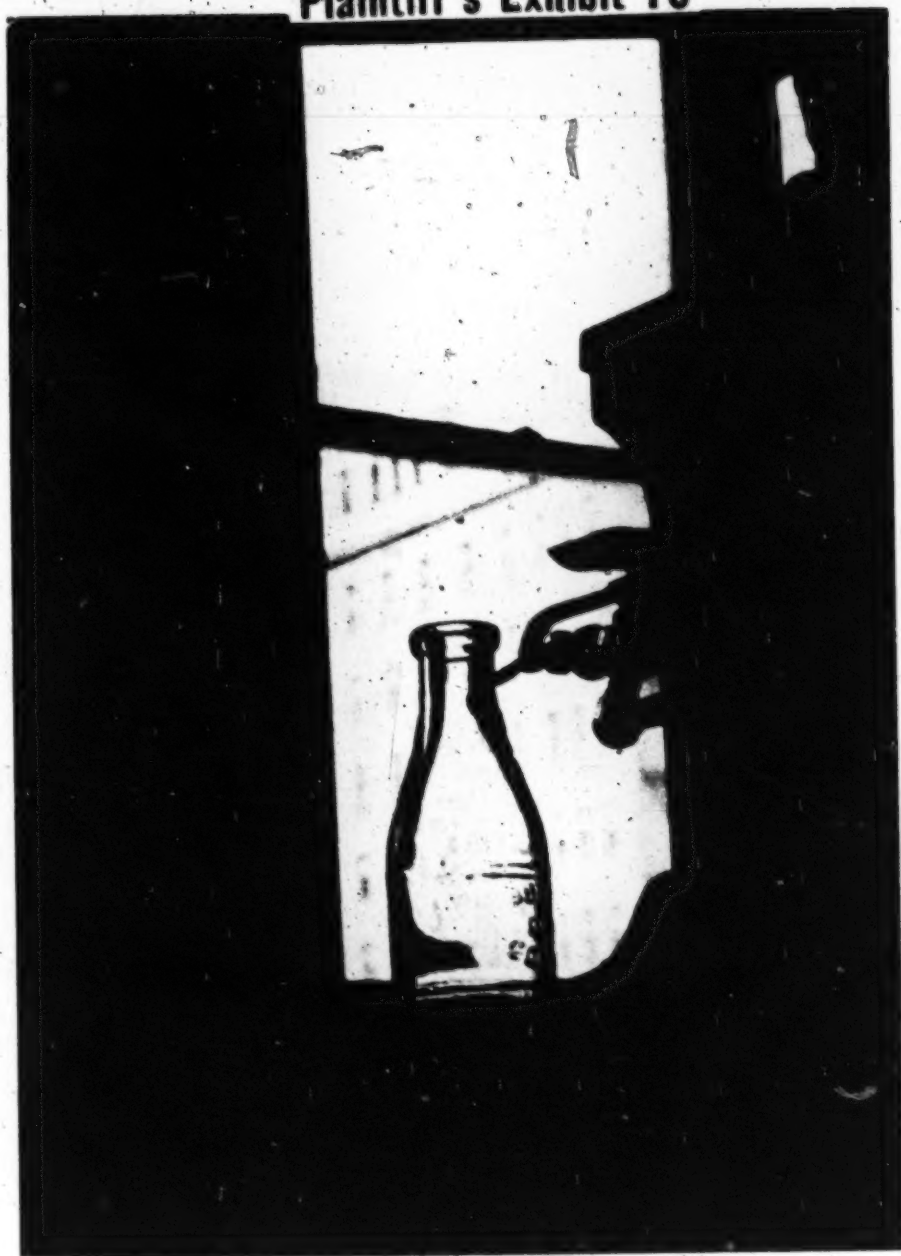


Plaintiff's Exhibit 76



Plaintiff's Exhibit 77

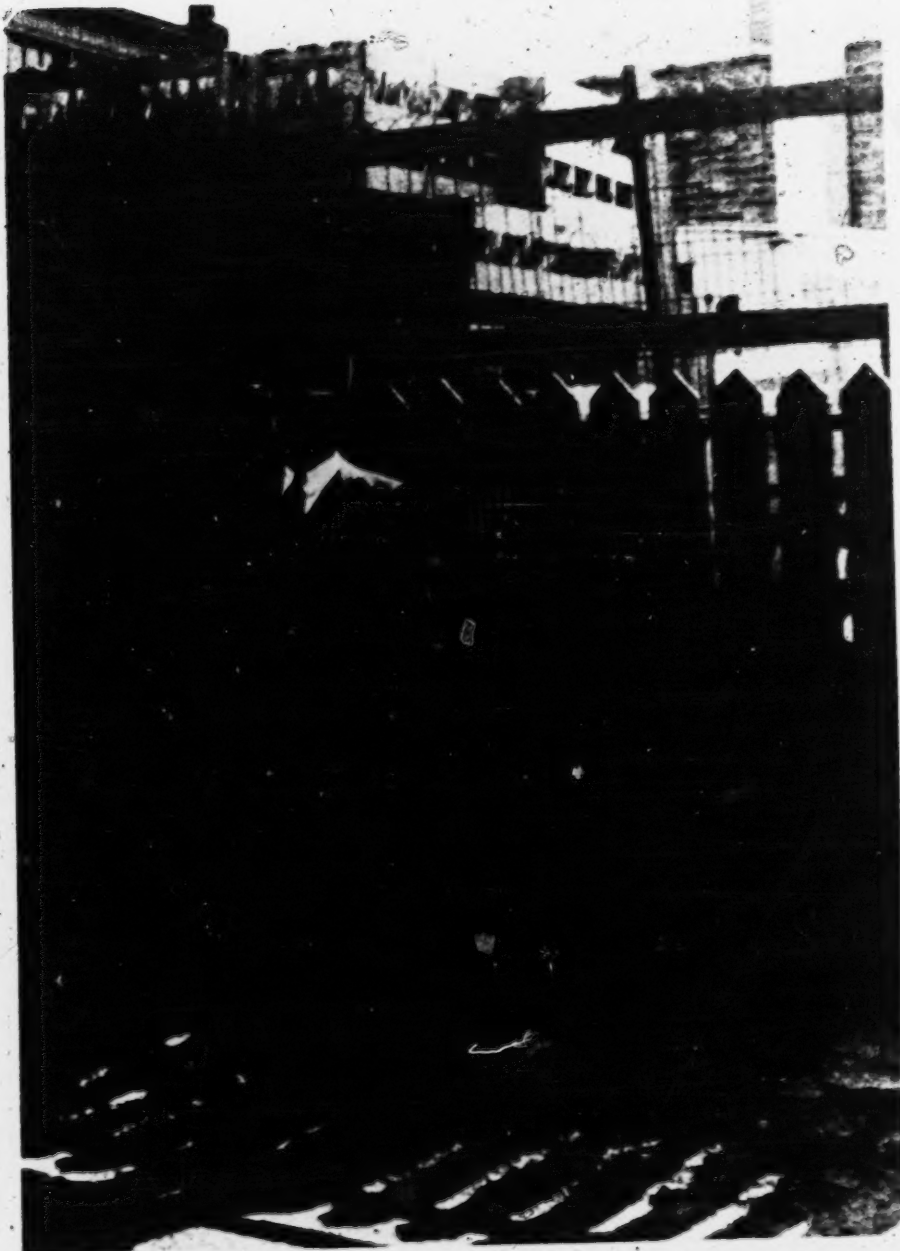


Plaintiff's Exhibit 78

Plaintiff's Exhibit 79

1943

Plaintiff's Exhibit 80



10-19
Plaintiff's Exhibit 81



2689 (Letterhead of University of Illinois College of
Medicine Department of Pathology and Bacteriology
1853 West Polk Street Chicago, Illinois)

December 17, 1937

Mr. George D. Scott
Ex-Cell-O Corporation
1200 Oakman Boulevard
Detroit, Michigan

Dear Mr. Scott:

I am enclosing a copy of a letter received to-day from Dr. Parran. I presume you have had your conference as indicated in this letter with both Dr. Parran and Mr. Frank. I shall be glad to hear from you if I can be of further service to you.

If, in your opinion, you have no further need for my services after the present time, it will be perfectly agreeable for me to discontinue my work January 1st, or at any time you might think it desirable. Mr. Dean called me and I have postponed a meeting with him pending the outcome of your Washington conference. As I told Mr. Dean on the telephone, I was not at all sure that he needed my services. When the proper time comes, I will discuss this with Mr. Dean, but I am not at all convinced that I can render him any worth while service after he installs a Pure-Pak machine in his plant. The Chicago Health Department will supervise this and I do not see the need of a duplicate supervising service. However, this matter can be settled at a later date.

Yours truly,
Lloyd Arnold
Lloyd Arnold, M. D.

Enc.
LA:MD

Pl Exhibit 83 Jacob I. Grossman Master in Chancery

2690 (Letterhead of Lloyd Arnold M.D. 5844 Stony Island Avenue Chicago)

Mr. George Scott
Ex-Cell-O Corporation
1200 Oakman Boulevard
Detroit, Michigan

Confidential

Dear Mr. Scott:

I spent three hours, the whole of yesterday afternoon (Wednesday) at the Chicago Board of Health. I have never been concerned with a situation so hopelessly involved as yours.

First: Paper containers for milk are not included as a part nor are they recognized by the United States Public Health Service Standard Code. This is a great disadvantage. There is therefore a legal justification for the exclusion of this type of package if the local health authorities wish to do so.

Second: Dr. Bundesen does not trust paper containers for fresh-fluid pasteurized milk. He feels that the use of such containers will lower the present milk sanitary standards and quality. He is honest and considers this procedure a health safeguard.

Third: I saw all correspondence relative to Frank—Dean correspondence. Surgeon General, Dr. Thomas Parran is intimately involved in this matter. Dr. Bundesen wrote him personally protesting the first letter from a junior man. Dr. Parran answered this and apparently dictated the letter signed by Frank to Dean after the first letter referred to. In the correspondence Dr. Parran thought paper milk containers had proved satisfactory and were being used to an extent that warranted favorable consideration. He admitted they were not approved in the Standard Ordinance, but he wants the Advisory Committee of Frank's to put these containers in the Code. Dr. Parran's letter was very friendly toward paper containers.

Fourth: I am being placed in an embarrassing position. I know Doctors Bundesen, Parran, etc. as a research man in Public Health and Bacteriology. The report I made to Bundesen was read by him with interest. I am to get it back today. I will forward it to you. I think you could get farther by seeing Dr. Parran with this report than for me to see them. They would not under-

2691

stand my presence. They have seen reports from me many times. We usually draw a clear line of demarkation between consulting scientific service and "influence" due to personal or professional connections or friendship.

Fifth: Dr. Bundesen wants me to keep the paper container problem in hand. He asked me to draft standards to be submitted to the United States Public Health Service. This is a future proposition and will require several weeks, then further delay in getting these standards adapted. Bundesen is satisfied with his present milk situation and sees no need to hurry. He will not write the United States Public Health Service at this time to formulate standards. He wants me to submit more data on this subject. This is crossing over into the Breed-Sanborn field.

I think you should see Tom Parran. Your viewpoint has never occurred to him and you will find him reasonable and fair. I am writing him on University letterhead and am enclosing a copy.

Yours truly,
Lloyd Arnold
Lloyd Arnold, M. D.

Enc.

LA:MD

1654

Plaintiff's Exhibit No. 84.

2692

(Chicago, Ill.)
(Dec 9)
(4 30 PM)
(1937)
(Mid-West Sta.)

Cancelled 16 cents United States Postage Stamps.
Special Delivery Special Delivery
Air Mail Air Mail

Mr. George Scott
Ex-Cell-O Corporation
1200 Oakman Boulevard
Detroit, Michigan

Confidential

(Stamp) Received Dec 10 1937 Ex-Cell-O Aircraft &
Tool Corporation.

(On Reverse Side)

Lloyd Arnold M.D.
5844 Stony Island Avenue
Chicago

(Chicago, Ill.)
(Dec 9)
(5 30 PM)
(1937)
(Air Mail)

2693

For Information of Mr. George Scott

December 9, 1937.

Dr. Thomas Parran, Surgeon General,
United States Public Health Service,
Washington, D. C.

Dear Doctor Parran:

The single service paper milk container has been handled badly in the Chicago area. Conflicting viewpoints and misunderstandings have developed. I became interested in this situation a month or so ago.

Mr. George Scott of the Pure-Pak group of Detroit has seen me several times about his product. I have been to Geneva for a conference with Doctors Breed and Sanborn about the paper board stock used in his product. I am convinced of the sincerity and the desire to co-operate in every way on the part of Mr. Scott and his associates. I feel that I have rendered all the advice I can in this situation. Some misunderstandings have developed and I wish you would see Mr. Scott and straighten out several points. I know of no one who could advise Mr. Scott as to the proper course and procedure he should follow as well as you.

I shall be glad to render what service I can and will gladly come to Washington at any time to confer with anyone you might suggest.

Yours truly,

Lloyd Arnold, M.D.

LA:MD

(Stamp) Received Dec 10 1937 Ex-Cell-O Aircraft &
Tool Corporation.

2694

PLAINTIFF'S EXHIBIT NO. 85:

TREASURY DEPARTMENT

United States Public Health Service

National Institute of Health

(Cut) Washington, D. C.

Division of Public Health Methods
Sanitation Section

November 12, 1937.

Mr. S. E. Dean, Jr.
Dean Milk Company
20 North Wacker Drive
Chicago, Illinois

Dear Mr. Dean:

In Mr. Frank's absence I have your request of November 9 for our opinion on single service containers in the distribution of milk and milk products.

Studies are being made by various agencies with the view of formulating suitable specifications for the manufacture of paper for bottles, also for the manufacture, shipment, and use of the bottles themselves. There is as yet, however, no general agreement on satisfactory specifications. For this reason we have suggested that health officers grant provisional permits for the use of paper bottles if such bottles are properly protected against contamination during shipment, storage, and handling at the milk plant; but all prospective users should be warned that much more stringent regulations may later be made.

Yours very truly,

A. W. Fuchs,

A. W. Fuchs,

Senior Sanitary Engineer,
Sanitation Section.

AWF:IC

cc Dr. Bundesen.

2695

PLAINTIFF'S EXHIBIT NO. 86.

TREASURY DEPARTMENT

United States Public Health Service

National Institute of Health

(Cut) Washington, D. C.

**Division of Public Health Methods
Sanitation Section**

November 26, 1937.

**Mr. S. E. Dean, Jr.
Dean Milk Company
20 North Wacker Drive
Chicago, Illinois**

Dear Mr. Dean:

Upon my return to Washington my attention has been directed to your letter of November 19 and Mr. Fuchs' reply of November 12.

It has recently developed that there is a wide difference of opinion among health authorities as to whether paper milk bottles should be approved and if so under what safeguards. For this reason we have now concluded that this entire problem should be brought before the Milk Sanitation Advisory Board at its next meeting, and that pending its decision local health authorities will be justified in maintaining the status quo. This means that in such cities as Chicago, where the use of paper milk bottles has not been permitted, the Board of Health will be justified in continuing to withhold permission at least until the Advisory Board reaches a conclusion.

Very truly yours,

**Leslie C. Frank,
Leslie C. Frank,
Senior Sanitary Engineer,
Sanitation Section.**

LCF:IC

cc Dr. Bundesen

Date Rec'd Dec. 3, 1937.

1658

Plaintiff's Exhibit No. 87.

2696

PLAINTIFF'S EXHIBIT NO. 87.

University of Illinois
College of Medicine
Department of Pathology
and Bacteriology
1853 West Polk Street
Chicago, Illinois

February 7, 1938.

Mr. George D. Scott
Ex-Cell-O Corporation
1200 Oakman Boulevard
Detroit, Michigan

Dear Mr. Scott:

Please return to me as soon as you can the report I prepared for Dr. Bundesen, President of the Chicago Board of Health.

Yours truly,

Lloyd Arnold,
Lloyd Arnold, M. D. :

LA:MD

2697

PLAINTIFF'S EXHIBIT NO. 88.

Copy of last pages of Defendants' Exhibit No. 31.
Proposed Standards to be Met by Paper Milk Containers.

1. The surfaces of paper milk containers coming in contact with milk shall be impermeable and non-porous, and shall be smooth and unbroken. Paraffin-immersion treatment, as employed at present, is not considered as meeting this definition.

2. The surface of the container in contact with milk shall be sterile or constructed of such materials that it can be disinfected in the dairy before use.

3. The material forming the surface shall be inert and of such composition that it will not react with milk, or "flake-off" into the milk. No toxic material which may be deleterious to health shall be present in paper, moisture-proofing materials, adhesives or other materials used in

the manufacture or subsequent treatment of paper milk containers.

4. Containers shall be made from virgin pulp or other suitable material and such board or material, prior to moisture-proofing, shall not have a bacterial count exceeding 500 colonies per gram.

Paper and similar materials to be used in the fabrication of milk containers shall be manufactured under the supervision and inspection of an official agency such as the United States Public Health Service. Such materials shall be manufactured under sanitary conditions and the plant, surroundings, equipment and method in 2698 paper mills and conversion plants shall meet the requirements of the United States Public Health Service for grade A milk plants.

Paper rolls, packages or boxes in which milk containers or materials for fabricating milk containers are shipped shall bear an approval stamp of the official inspection agency and such stamp shall identify, by number or other approved method, the source of the product.

Only water meeting the Federal standard for safe drinking water shall be used in the treatment of pulp or other materials and in any subsequent treatment of containers.

Unless used immediately after manufacture, container blanks shall be wrapped, sealed and protected from contamination until used. When used the outside sheet on rolls or the top and bottom sheets of sheeted stock shall be discarded in all cases.

5. All stock and containers shall be handled mechanically in the conversion plant as far as possible. Following fabrication, until final filling and sealing in the milk plant, container surfaces with which milk or milk products come in contact shall be protected from contamination.

6. Throughout the processes of printing, folding, sealing, adhesive application, or packing prior to shipment to milk plant, all stock and containers shall, as far as 2699 feasible, be handled mechanically and be suitably wrapped or packaged before shipping.

Packaged container stock at milk plants shall be kept in a clean, dry place and opened only for immediate use. Where it is necessary to form or manipulate containers, all surfaces with which milk or milk products may come in contact, shall be protected from human handling.

7. The glueing or sealing of container board shall be accomplished by means of non-fermentable adhesives. Ad-

hesives must not contaminate containers in any manner, nor contain any substance in amounts detrimental to health.

8. Cases for shipping empty containers shall be constructed of board or wrapping designed adequately to protect containers from injury or abuse due to tearing or breaking. Containers shall be stored in sealed, dry, unbroken cases, in a dry, vermin-proof location. Partly empty shipping cases of prefabricated containers shall be resealed, rewrapped, or otherwise protected from contamination during storage. Empty containers shall not be exposed to contamination at any time.

The opening of shipping cases and the storing of containers shall be done in a room separate from other milk handling equipment.

9. Equipment used for moisture-proofing, bactericidal treatment, filling or otherwise handling paper or similar materials to be used for milk containers shall conform to the requirements of the United States Public Health Service for milk handling equipment used in grade A milk plants.

2700 10. In the filling and handling of the container, milk shall be so handled to prevent adulteration, and the contents of the container shall not be contaminated by micro-organisms, chemicals or other substances contained in the material forming the wall.

May 11, 1939.

2701

PLAINTIFF'S EXHIBIT 89.

Federal Security Agency.

U. S. PUBLIC HEALTH SERVICE,

Washington.

In Replying
Address the Surgeon General,
U. S. Public Health Service
D. Q. Division,
Sanitation Section.

October 6, 1939.

Dr. Herman N. Bundesen,
President, Board of Health,
54 W. Hubbard Street,
Chicago, Illinois.

Dear Dr. Bundesen:

Your request of September 28, addressed to the Surgeon General, for a copy of Section 10 of the Public Health Service Milk Ordinance and Code as it will appear in the forthcoming printed edition of that publication, has been referred to this office for reply.

There is attached a copy of Section 10 as it will appear in the forthcoming printed 1939 Milk Code.

Very truly yours,

(Signed) Walter N. Dashiell,
Walter N. Dashiell,

Asso. Public Health Engineer for Chief,
Sanitation Section.

ENC.

WND:IC

cc State Health Officer.

cc Dr. W. H. Haskell.

(Typewritten sheets attached entitled "Section 10 as it will appear in the 1939 printed Public Health Service Milk Code" are identical with pages 2, 3, 4, 5 and 6 of Defendants' Exhibit 29 and by agreement of the parties are here omitted in order to avoid duplication.)

2702

PLAINTIFF'S EXHIBIT 92.

Federal Security Agency.

U. S. PUBLIC HEALTH SERVICE,

(Cut)

Washington.

In Replying
Address the Surgeon General,
U. S. Public Health Service.
Sanitation Section,
D. Q. Division.

September 16, 1939.

Mr. George D. Scott,
Sales Manager,
Pur-Pak Division, Ex-Cell-O Corp.,
1200 Oakman Boulevard,
Detroit, Michigan.

Dear Mr. Scott:

Your Washington attorney, Mr. Sumner S. Kittelle, requested us, under date of September 15, to send you certain information relative to the requirements for paper milk bottles in the Milk Ordinance and Code recommended by the Public Health Service.

Section 10 now provides that milk and milk products sold in distributors' containers in quantities of less than one gallon shall be delivered in standard milk bottles. This has been amended so as to add "or in single-service containers," and will so appear in the forthcoming printed 1939 edition, which is to be issued in about two months.

The specifications for single-service containers, etc., which will appear in the new edition will require bactericidal treatment equivalent to contact with paraffin for at least 25 seconds at at least 180° F. or for at least 35 seconds at at least 175° F. in approved equipment operated in an approved manner. (These time-temperature combinations are, however, subject to change as a result of further tests now being conducted.) Contact with paraffin at the required temperature for part of the required time combined with contact with hot air at the required temperature for the remainder of the required time will be

interpreted as complying with this requirement unless and until such combination is demonstrated to be inadequate for proper bactericidal treatment.

Very truly yours,

A. W. Fuchs,

A. W. Fuchs,

Senior Sanitary Engineer for
Chief,

Sanitation Section.

AWF:hb

CC: Dr. Bundesen.

CC: Dr. Haskell.

2709

DEFENDANT'S EXHIBIT 1.

From Owen Rall, c/o Joseph S. Clark, Jr.,
1320 Packard Bldg.

April 27, 1939.

Sylvan Seal Milk, Inc.,
612 South 24th Street,
Philadelphia, Pa.

Name
Business address
Age
Position with company
How long with company
Nature of business of Company
Where are its plants
How long been using Pur-Pak (In Baltimore
and in Philadelphia)
Sold how many quarts of milk in Pur-Pak (hundreds of
thousands of quarts)
State briefly the process by which milk is put in Pur-Pak:
.....
.....

(Paper blank similar to Dean-Fieldcrest blank, plaintiff's exhibit 3, which I shall show you, is placed on tray of machine, which automatically forms it into a paper bottle by sealing the bottom, then immerses it in paraffin heated to 177 degrees F. and drains in heated chamber at same temperature. Bottle is in paraffin and draining chamber for 23 seconds. Machine then cools the paraffined bottle for 23 seconds in cooling unit at 40 degrees F., then fills with milk or cream automatically, and the top is automatically heated and closed and stapled with a pre-

heated wire staple. When operation is completed, result is substantially the same as plaintiff's exhibit 2 (a dummy paraffined carton of Fieldcrest Dairies, Inc., which I shall show you.) Full packages then placed in cartons and delivered to stores.

Do municipalities in which you sell milk and cream have ordinances regulating the inspection, sanitation, and handling of liquid milk and cream?.....

2711 DEFENDANT'S EXHIBIT 1A.

Total time in chamber 23 seconds

$$7 \times 60$$

7 Bottles draining $\frac{\quad}{38} =$ 11 seconds

Actually in paraffine..... 12 seconds

2710 DEFENDANT'S EXHIBIT 1B.

Are the sales which you have described in these various municipalities made in Pur-Pak with the approval and consent of the health authorities there?.....

I will show you planograph copies of the following letters to Silver Seal Dairy Products Co. or to Edward R. Fuller, president, and ask you to state whether the originals of these letters were received by your company or its predecessor at or about the dates they bear: Nov. 27, 1936, H. M. Packer to Silver Seal; Nov. 28, 1936, Dennis J. Sullivan, deputy health commissioner, Jersey City, N. J., to Edward R. Fuller; Nov. 30, 1936, John C. Foote, Wilmington, Del., to Edward R. Fuller; Dec. 1, 1936, W. K. Moffett to Silver Seal; Dec. 1, 1936, J. Lynn Mahaffey to Silver Seal; Dec. 2, 1936, Geo. W. Grim to Silver Seal Dairy; Jan. 5, 1937, Huntington Williams to Mr. Fuller.

(If Mr. Fuller is the only one who can identify this correspondence, I trust that he will be available to testify.)

Any complaints about absorption by the container of milk or cream?.....

Any experience that Pur-Pak paper bottles, formed, paraffined and filled in accordance with above procedure does absorb milk or cream in the time within which such milk or cream remains in the paper bottle?.....

Bacteria counts (identify Wilmington report, etc.)

2712

DEFENDANT'S EXHIBIT NO. 2.

Microbiology in Pulp and Paper Manufacture.

J. R. Sanborn
New York Agricultural Experiment Station,
Geneva, New York.

Scope of Pulp and Paper Mill Microbiology.

Many pulp and paper mills are slow to correlate mill problems in biology and sanitation with the requirements of sanitarians in their applications of paper products to new uses. The perennial biological problem of pulp and paper mills is slime which has been shown to affect paper quality.⁽¹⁾ What the average paper maker calls slime, however, is only a small part of pulp and paper mill microbiology. The growths which may be produced in mill systems are as varied as the diversified predominating types of organisms, including species responsible for decomposition, discoloration and spotting of pulp and paper. It is obvious that slime problems should not be looked upon as restricted or transient conditions. They represent general microbiological hazards requiring the application of consistent programs of prevention.

Several years ago this situation was seriously considered by certain mills in the light of possible effects upon the sanitary condition of paper products. It was found, for example, that container board for food packaging may harbor thousands of micro-organisms per gram of paper, including coliform organisms and filamentous fungi. Problems of sanitation and food spoilage from the use of highly contaminated container board were immediately investigated. Studies such as these have brought to the attention of the industry the fundamental importance of microbiology and practical mill sanitation.

2713 Mills are now viewing critically their water supplies and the condition of raw materials. They are studying the problem of white water utilization from the standpoint of recontamination of the system by undesirable bacteria, as well as from economic and operative aspects.

Presented before the Empire State Section of the Technical Association of the Pulp and Paper Industry, Syracuse, New York, November 13, 1937.

Plants so fortunately situated as to have naturally pure process water do not ordinarily find it difficult to control the development of micro-organisms. Polluted supplies present at the outset a serious obstacle to mill sanitation, requiring careful attention to purification problems which may be aggravated by wide fluctuations in degrees of pollution. Nearly all of the undesirable mill contamination comes from water, though occasionally evidence points to organisms from pulp wood, lap stock, and various raw materials. Conditions in piles of pulp wood sometimes favor the development of fungi. Spores and growth fragments may be carried to the mill by air dissemination or on the boots and clothing of workers.

Besides wood rotting fungi which may be isolated, such as members of the genera *Fomes*, *Polyporus*, and *Stereum*, other fungi, more or less troublesome in pulp and paper manufacture, are sometimes present, including *Trichoderma*, *Botrytis*, *Penicillium*, *Aspergillus*, *Alternaria*, and *Stemphilium*.

Lap stock of virgin pulp, improperly stored, frequently shows marked evidence of fungus growth, discoloration and decomposition. A few types exert a bleaching action on pulp. The fungi causing numerous discoloration difficulties consist of a number of well-known species and various slime-formers, such as

<i>Trichoderma</i> sp.	<i>Chaetomium</i> sp.
<i>Cladosporium</i> sp.	<i>Trichothecium roseum</i>
<i>Verticillium</i> sp.	<i>Aspergillus oryzae</i>
<i>Sporotrichum</i> sp.	<i>Aspergillus niger</i>
<i>Alternaria</i> sp.	<i>Acrostalagmus</i> sp.
<i>Penicillium</i> sp.	

In addition to effective water purification, therefore, methods of practical mill sanitation must be followed to prevent colonization and spread of undesirable bacteria and fungi. Table 1 presents a brief comparison of six mills manufacturing miscellaneous grades of paper, illustrating concisely, though incompletely, the complex microbiological conditions existing at some of these plants. The counts were obtained by the plating method using standard agar.

This table shows the variations in raw water counts among the rivers of these regions but gives no indication

of the fluctuations which some of them exhibit. In the mills of the Northeast, slimes caused by typical river water bacteria increase during summer months. Fungus growths may cause greatest difficulty in the fall and late winter. Periodic discoloration troubles also occur due to growth of algae in raw water and development of iron bacteria in pipe lines. Reference has previously been made to these various groups of organisms found in pulp and paper mills.⁽¹⁾ ⁽²⁾

Table 1. Approximate Microbiological Conditions at Representative Pulp and Paper Mills of the Northeast

Mill	Raw Water Colonies per cc. 32°C.-48 Hrs.	Chlorinated Fresh Water 32°C.-48 Hrs.	Heaviest Contamination (Ground Wood Mill)	Average Count in System	Count During Periods of Best Control	Season of Greatest Slime Difficulty	Troublesome Types of Organisms
1	500	10	3,435,000 (Ground Wood Mill)	424,000	Less than 100 (Sulfite Mill)	October, July and August	Non-Spore-bearing Bacteria. Spore- bearing Bacteria. Filamentous and Yeast-like Fungi.
2	13,600	5	4,820,000 (Secondary Stock)	92,260	Less than 100 (Bleached Sulfite Stock)	May to August	Non - Spore - bearing Bacteria. Spore- bearing Bacteria. Micrococci.
3	280	8	5,780,000 (Paper Mill White Water)	603,225	6,000 (Sulfite Mill)	February and March, June to August	Yeast-like and Fila- mentous Fungi. Non-spore-forming Bacteria.
4	22,700	10	5,000,000 (Paper Mill White Water)	960,850	122,500 (Sulfite Mill)	April to August	Non - spore - bearing Bacteria. Spore- forming Bacteria. Filamentous and Yeast-like Fungi.
5	2,150	0	2,250,000 (Paper Mill - White Water)	158,570	Practically Free of Micro-organisms (Ground Wood White Water)	October	Filamentous Fungi.
6	2,000	17	280,000 (Ground Wood Mill)	7,450	Less than 100 (Bleached Sulfite Stock)	June to August	Non - spore - forming Bacteria. Spore- forming Bacteria. Filamentous Fungi.

2716 Development of Micro-organisms in Mill Systems.

Examinations of blow pit stock before introduction of white water, show that the pulp produced by sulfite mills is sterile. In the case of ground wood, it has been found that, while stock taken directly from grinders is frequently practically sterile, heat-resistant organisms may persist. Unless steps are taken to reduce contamination from recirculating white water, large numbers of bacteria may be introduced into pulp from this source. The situations at various mills are indicated by the following figures:

Table 2.

Contamination of Pulp by Organisms from White Water.

	Mill A Grinder Stock	Mill B Blow Pit	Mill C		Mill D Blow Pit
			Grinder	Blow Pit	
Fresh Pulp..... (Colonies developing per cc. in 48 hrs. at 32°C. on standard agar).	0	0	0	0	0
Bacterial Count per cc. in Reused White Water	600	155,000	1,000,000	2,104,000	415,000

Starting with this original contamination, further increases during subsequent operations or decreases in bacterial numbers due to germicidal treatments have been described elsewhere.⁽¹⁾ Effective control of white water contamination is being maintained at a number of mills. This is done through the use of fresh water make-up and direct application of bactericidal agents. The effective use of bactericidal treatments is essential not only to efficient mill operation and paper quality but also to the production of paper which meets the sanitary requirements of public health authorities.

2717. Microbial Content of Finished Paper.

For the purposes of the present discussion, pulp and paper mill micro-organisms may be divided into two classes, the heat-resistant and non-heat-resistant species. The former group includes various slime-producing organisms, spore-bearing bacteria, and micrococci. Many non-spore-

bearing bacteria from water supplies and a number of filamentous fungi occur in the non-heat-resistant class. Abundant contamination with miscellaneous types of organisms takes place at deckers, screens, head boxes and in paper machine white water.

As the sheet goes over the driers, the surface of the paper reaches temperatures of 80° to 100°C., or over. It is difficult to determine the actual temperature of the interior of the sheet and experimental results vary. While there are considerable reductions in bacterial numbers during this process, drier temperatures cannot be relied upon to eliminate all of the non-spore-forming bacteria in pulp, nor spore-producing species usually present in appreciable numbers. Container board made from virgin pulp produces on standard agar less than 500 colonies per gram of disintegrated stock. In types of container board where less attention is paid to sanitation in manufacturing operations or quality of pulps employed, counts may be much higher than 500.

It would be decidedly advantageous to the pulp and paper industry to produce consistently sterile paper for the packaging of perishable foods and sanitary protection of other easily contaminated products. Definite progress toward this goal is being made by the majority of mills producing milk container board. The beneficial results achieved by plants which persistently practice cleanliness and microbiological control are reflected in the improved sanitary condition of food paper containers used for perishable food products such as milk.

The entire industry should be cognizant of and prepared to apply this sanitary technique, which is based upon intimate knowledge of mill microbiology and specific preventive measures. Public Health authorities are watching with interest the hygienic developments in the making and handling of bacteria-free paper.

2718 (1) Sanborn, J. R., *Eng. Chem.* (1937) 29;949.

(2) Sanborn, J. R., *J. Bact.* (1933) 26;373.

2719

DEFENDANT'S EXHIBIT NO. 7.

Table 1.—Number of Bacteria Enmeshed in the Body of the Paper

Bacteria per Gram of Paper

Sample No.	Sample No.	Sample No.
1. 7493	25. 440	49. 63
2. 2570	26. 320	50. 60
3. 2550	27. 253	51. 57
4. 2400	28. 258	52. 33
5. 2350	29. 240	53. 33
6. 2173	30. 203	54. 20
7. 2160	31. 193	55. 20
8. 2070	32. 190	56. 13
9. 2000	33. 183	57. 13
10. 1880	34. 183	58. 10
11. 1833	35. 153	59. 10
12. 1733	36. 137	60. 7
13. 1560	37. 133	61. 7
14. 1490	38. 133	62. 3
15. 1437	39. 123	63. 3
16. 1120	40. 120	64. 3
17. 1000	41. 120	65. 3
18. 720	42. 117	66. 3
19. 680	43. 100	67. 0
20. 560	44. 93	68. 0
21. 560	45. 91	69. 0
22. 560	46. 73	70. 0
23. 560	47. 70	
24. 440	48. 67	

2720

DEFENDANT'S EXHIBIT NO. 8.

Board of Health—City of Chicago, Bureau of Dairy
Products

(Distributor) Ogden Dairy Co., (Address) 4333 Ogden
Ave.

Name of Owner Frank Kubat Dist No. 4.

(Past. Plant Platform Store Wagon Office) Collected at
Location 4333 Ogden Ave.

(Milk from) (Address)

Inspector Larsen Day Tues. Date 1/19/37 Hour 2 P. M.
Attendant C. Kubat.

Sample Numbers	Sample of	Past. or Raw	Container	Approximate Amount in Container	Serial No. Day Marks	Temp.	Result of Analysis		
							Bacteria per c. c.	Butter Fat %	Sediment Not
713	Empty qt bottle						Less Than 50 Bacteria Per Bottle		

President of Board

2721

DEFENDANT'S EXHIBIT NO. 9.

Bureau Serial No. D-45713 Laboratory Serial No. 790.
 Sample of Empty qt bottle Amount.....
 Source Past Plant.
 Inspector Larsen.
 Tests Required Bact.

Official Plate Count Est. per Bottle.
 Dilution-1.50 Colony Count.....

B
 Bacteriologist.

	1st Test	2nd Test	Acidity	%
Specific Gravity			Added Water	%
Total Fat	%	%	Sediment	
Solids Not Fat	%	%	Total Solids (Grav.)	%
Special Tests				

Chemist

Bacteriological and Chemical Examination of Milk
 Board of Health—City of Chicago
 Herman N. Budesen, M. D., President
 Bureau of Laboratories

(Left-hand margin) Delivered 1937 Jan 20 PM 1 35
 (Right-hand margin) Reported 1937 Jan 22 PM 4 36

2722

DEFENDANT'S EXHIBIT NO. 10.

Bacterial Content of Empty Milk Bottles Examined by the Board of Health of the City of Chicago during the years 1937, 1938, and the first nine months of 1939.

Totals of all Bottle Sizes.

	Year 1937		Year 1938		1st 9 months of 1939	
	Number	% of total	Number	% of total	Number	% of total
Total bottles examined, all sizes	1469	100.0%	1484	100.0%	1144	100.0%
Total bottles which showed no growth and were reported as containing less than 50 bacteria per bottle.	1136	78.2%	1357	91.4%	1057	92.4%
Total bottles which showed more than 50 bacteria but less than the maximum limit	247	16.8%	77	5.2%	58	5.1%
Total bottles which showed more bacteria than the maximum permitted.....	86	5.0%	50	3.4%	29	2.5%

2723

DEFENDANT'S EXHIBIT NO. 11.

Bacterial Content of Empty Milk Bottles Examined by the Board of Health of the City of Chicago during the years 1937, 1938, and the first nine months of 1939.

Size of Bottle—1 quart.

	Year 1937		Year 1938		1st 9 months of 1939	
	Number	% of total	Number	% of total	Number	% of total
Total quart bottles examined.	423	100.0	532	100.0	457	100.0
Total quart bottles which showed no growth and were reported as containing less than 50 bacteria per bottle.	315	74.5	481	90.4	417	91.4
Total quart bottles which were reported to contain between 50 and 1000 bacteria per bottle.....	84	19.8	32	6.0	34	7.4
Total quart bottles which were reported to contain more than 1000 bacteria per bottle	24	5.7	19	3.6	6	1.3

2724

DEFENDANT'S EXHIBIT NO. 12.

Bacterial Content of Empty Milk Bottles Examined by the Board of Health of the City of Chicago during the years 1937, 1938, and the first nine months of 1939.

	Size of Bottle—1 Pint.					
	Year 1937		Year 1938		1st 9 months of 1939	
	Number	% of total	Number	% of total	Number	% of total
Total Pint Bottles Examined	341	100.0%	325	100.0%	183	100.0%
Total Pint Bottles which showed no growth and were reported as containing less than 50 bacteria per bottle.	265	77.7%	296	91.0%	168	91.8%
Total Pint Bottles which were reported to contain between 50 and 500 bacteria per bottle.....	57	16.7%	20	6.2%	13	7.1%
Total Pint Bottles which were reported to contain more than 500 bacteria per bottle	19	5.6%	9	2.8%	2	1.1%

2725

DEFENDANT'S EXHIBIT NO. 13.

Bacterial Content of Empty Milk Bottles Examined by the Board of Health of the City of Chicago during the years 1937, 1938, and the first nine months of 1939.

	Size of Bottle—One-Third Quart.					
	Year 1937		Year 1938		1st 9 months of 1939	
	Number	% of total	Number	% of total	Number	% of total
Total one-third quart bottles examined	18	100 %	21	100 %	19	100 .%
Total one-third quart bottles which showed no growth and were reported as containing less than 50 bacteria per bottle.....	16	88.9%	20	95.2%	18	94.7%
Total one-third quart bottles which were reported to contain between 50 and 350 bacteria per bottle.....	2	11.1%	1	4.8%	1	5.3%
Total one-third quart bottles which were reported to contain more than 350 bacteria per bottle.....	0	0	0	0	0	0

2723

DEFENDANT'S EXHIBIT NO. 14.

Bacterial Content of Empty Milk Bottles Examined by the Board of Health of the City of Chicago during the years 1937, 1938, and the first nine months of 1939.

Size of Bottle—One-half Pint.

	Year 1937		Year 1938		1st 9 months of 1939	
	Number	% of total	Number	% of total	Number	% of total
Total one-half pint bottles examined	522	100.0%	560	100.0%	467	100.0%
Total one-half pint bottles which showed no growth and were reported as containing less than 50 bacteria per bottle.....	413	79.1%	516	92.2%	440	94.2%
Total one-half pint bottles which were reported to contain between 50 and 250 bacteria per bottle.....	72	13.8%	22	3.9%	9	2.1%
Total one-half pint bottles which were reported to contain more than 250 bacteria per bottle.....	37	7.1%	22	3.9%	18	3.8%

2727

DEFENDANT'S EXHIBIT NO. 15.

Size of Bottle—Unclassified.

	Year 1937		Year 1938		1st 9 months of 1939	
	Number	% of total	Number	% of total	Number	% of total
Total bottles examined.....	165	100 %	46	100 %	18	100 %
Total bottles which showed no growth and were reported as containing less than 50 bacteria per bottle.	127	77.0%	44	95.6%	14	77.8%
Total bottles which showed more than 50 bacteria but less than the maximum limit	32	19.4%	2	4.4%	1	5.5%
Total bottles which showed more bacteria than the maximum limit.....	6	3.6%	0	0	3	16.7%

2728

DEFENDANT'S EXHIBIT NO. 16.

Sec. 10. Transferring or Dipping Milk; Delivery Containers; Handling of More Than One Grade; Delivery of Milk at Quarantined Residences.

Except as permitted in this section, no milk producer or distributor shall transfer milk or milk products from one container to another on the street, or in any vehicle or store, or in any place except a bottling or milk room especially used for that purpose. The sale of dip milk is hereby prohibited.

All pasteurized milk and milk products shall be placed in their final delivery containers in the plant in which they are pasteurized, and all raw milk and milk products sold for consumption in the raw state shall be placed in their final delivery containers at the farm at which they are produced. Milk and milk products sold in the distributor's containers in quantities less than one gallon shall be delivered in standard milk bottles. It shall be unlawful for hotels, soda fountains, restaurants, groceries, and similar establishments to sell or serve any milk or milk product except in the original container in which it was received from the distributor or from a bulk container equipped with an approved dispensing device; provided that this requirement shall not apply to cream consumed on the premises, which may be served from the original bottle or from a dispenser approved for such service.

No milk or milk products shall be permitted to come in contact with equipment with which a lower grade of milk or milk product has been in contact unless such equipment has first been thoroughly cleaned and subjected to bactericidal treatment.

Bottled milk or milk products, if stored in water, shall be so stored that the tops of the bottles will not be submerged.

It shall be the duty of all persons to whom milk or milk products are delivered to clean thoroughly the containers in which such milk or milk products are delivered before returning such containers. Apparatus, containers, equipment, and utensils used in the handling, storage, processing, or transporting of milk or milk products shall not be used for any other purpose without the permission of the health officer.

The delivery of milk or milk products to and the collection of milk or milk-products containers from quarantined residences shall be subject to the special requirements of the health officer.

2729

DEFENDANT'S EXHIBIT NO. 17.

(Section 10 as it will appear in the 1939 printed Public Health Service Milk Code.)

"Sec. 10. Transferring or Dipping Milk; Delivery Containers: Handling of More Than One Grade; Delivery of Milk at Quarantined Residences.

"Except as permitted in this section, no milk producer or distributor shall transfer milk or milk products from one container to another on the street, or in any vehicle or store, or in any place except a bottling or milk room especially used for that purpose. The sale of dip milk is hereby prohibited.

"All pasteurized milk and milk products shall be placed in their final delivery containers in the plant in which they are pasteurized, and all raw milk and milk products sold for consumption in the raw state shall be placed in their final delivery containers at the farm at which they are produced. Milk and milk products sold in the distributors' containers in quantities less than one gallon shall be delivered in standard milk bottles or in single-service containers. It shall be unlawful for hotels, soda fountains, restaurants, groceries, and similar establishments to sell or serve any milk or milk product except in the original container in which it was received from the distributor or from a bulk container equipped with an approved dispensing device: Provided, That this requirement shall not apply to cream consumed on the premises, which may be served from the original bottle or from a dispenser approved for such service. It shall be unlawful for any hotel, soda fountain, restaurant, grocery, or similar establishment to sell or serve any milk or milk products which have not been maintained, while in its possession, at a temperature of 50° F. or less.

"No milk or milk products shall be permitted to come in contact with equipment with which a lower grade of milk or milk product has been in contact unless such equipment

has first been thoroughly cleaned and subjected to bactericidal treatment.

"Bottled milk or milk products, if stored in water, shall be so stored that the tops of the bottles will not be submerged.

"It shall be the duty of all persons to whom milk or milk products are delivered to clean thoroughly the containers in which such milk or milk products are delivered before returning such containers. Apparatus, containers, equipment, and utensils used in the handling, storage, processing, or transporting of milk or milk products shall not be used for any other purpose without the permission of the health officer.

"The delivery of milk or milk products to and the collection of milk or milk-products containers from residences in which cases of communicable disease transmissible through milk supplies exist shall be subject to the special requirements of the health officer.

2730

DEFENDANT'S EXHIBIT #18

Sample No.	Date Coll.	Collected By	Source	Container	Bacterial Count & Bacteriologist
1937					
1222	6- 4-37	Claussen	Ogden Dairy Co. 4333 Ogden Ave. Chicago, Ill.	Qt.	Less than 50 per c.c. Beers
9348	7-13-37	Lynch	"	Qt.	14500 per c.c. Beers
9354	8- 2-37	Lynch	"	Pt.	Less than 50 per c.c. Beers
9384	9- 7-37	Lynch	Ogden Dairy Co. 4335 Ogden Ave. Chicago, Ill.	Qt.	Less than 50 per c.c. Beers
13074	10- 6-37	Lynch	Ogden Dairy Co. 4333 Ogden Ave. Chicago, Ill.	Qt.	Less than 50 per c.c. Beers
13106	12- 6-37	Lynch	Ogden Dairy Co. 4335 Ogden Ave. Chicago, Ill.	1/3 Qt.	Less than 50 per c.c. Beers
45713	1-19-37	Larsen	Ogden Dairy Co. 4333 Ogden Ave. Chicago, Ill.	Qt.	Less than 50 per c.c. Beers
45748	4-20-37	Larsen	"	Pt.	Less than 50 per c.c. Beers

2731.

Sample No.	Date Coll.	Collected By	Source	Container	Bacterial Count & Bacteriologist
1938					
8227	9-12-38		Ogden Dairy Co. 4333 Ogden Ave. Chicago, Ill.	Qt.	Less than 50 per c.c.
8254	10-19-38		"	Qt.	Less than 50 per c.c.
8271	12-12-38		"	Qt.	Less than 50 per c.c.
13247	7-14-38		"	Qt.	Less than 50 per c.c.
13119	1-17-38	Lynch	Ogden Dairy Co., 4333 Ogden Ave., Chicago, Ill.	Pt.	Less than 50 per c.c. Beers
13149	2-15-38	Lynch	"	Qt.	Less than 50 per c.c. Beers
13170	3-14-38	Lynch	"	Pt.	Less than 50 per c.c. Beers
13180	4-19-38	Lynch	"	1/2 Pt.	Less than 50 per c.c. Beers
13202	5-10-38	Lynch	Ogden Dairy Co., 4333 Ogden Ave., Chicago, Ill.	Qt.	Less than 50 per c.c. Beers
13219	6-6-38	Lynch	"	Qt.	Less than 50 per c.c. Beers
13256	8-16-38	Lynch	"	Qt.	Less than 50 per c.c. Beers

Defendant's Exhibit No. 18.

1681

2732

Sample No.	Date Coll.	Collected By	Source	Container	Bacterial Count & Bacteriologist
25679	10- 4-39	Lynch	Ogden Dairy Co. 4333 Ogden Ave. Chicago, Ill.	Qt.	Less than 50 per c.c. Beers
25681	10- 4-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25683	10- 4-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25684	10- 4-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25687	10- 4-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25690	10- 4-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25682	10- 4-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25684	10- 4-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25686	10- 4-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25688	10- 4-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25689	10- 5-39	Lynch	"	Qt.	100 per c.c. Hlavacek
25691	10- 4-39	Lynch	"	Qt.	Less than 50 per c.c. Hlavacek
25693	10- 4-39	Lynch	"	Qt.	100 per c.c. Hlavacek
25695	10- 4-39	Lynch	"	Qt.	300 per c.c. Hlavacek
25697	10- 4-39	Lynch	"	Qt.	100 per c.c. Hlavacek
25699	10- 4-39	Lynch	"	Qt.	Less than 50 per c.c. Hlavacek
25692	10- 4-39	Lynch	"	Qt.	100 per c.c. Hlavacek
25694	10- 4-39	Lynch	"	Qt.	Less than 50 per c.c. Hlavacek
25696	10- 4-39	Lynch	"	Qt.	150 per c.c. Hlavacek
25698	10- 4-39	Lynch	"	Qt.	Less than 50 per c.c. Hlavacek
8289	2- 8-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
8303	3-16-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
8338	6-14-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25620	7-13-39	Lynch	"	Qt.	Less than 50 per c.c. Gutt
24639	9-12-39	Lynch	"	Qt.	Less than 50 per c.c. Beers

2733

Sample No.	Date Coll.	Collected By	Source	Container	Bacterial Count & Bacteriologist
28193	9-21-39	Roberts	Ogden Dairy Co., 4341 Ogden Ave., Chicago, Ill.	Pt.	Less than 50 per c.c. Beers
25700	10- 6-39	Lynch	Ogden Dairy Co., 4333 Ogden Ave., Chicago, Ill.	Qt.	Less than 50 per c.c. Ballard
25702	10- 6-39	Lynch	"	Qt.	Less than 50 per c.c. Ballard
25704	10- 6-39	Lynch	"	Qt.	Less than 50 per c.c. Ballard
25706	10- 6-39	Lynch	"	Qt.	Less than 50 per c.c. Ballard
25708	10- 6-39	Lynch	"	Qt.	Less than 50 per c.c. Ballard
28192	9-21-39	Roberts	Ogden Dairy Co., 4341 Ogden Ave., Chicago, Ill.	Pt.	Less than 50 per c.c. Beers
28194	9-21-39	Roberts	"	1/2 Pt.	Less than 50 per c.c. Beers
28195	9-21-39	Roberts	"	Qt.	Less than 50 per c.c. Beers
28196	9-21-39	Roberts	"	Qt.	Less than 50 per c.c. Beers
28197	9-21-39	Roberts	"	Qt.	Less than 50 per c.c. Beers
28198	9-21-39	Roberts	"	Qt.	Less than 50 per c.c. Beers
28199	9-21-39	Roberts	"	Pt.	Less than 50 per c.c. Beers
28200	9-21-39	Roberts	"	Pt.	Less than 50 per c.c. Beers
28201	9-21-39	Roberts	"	Pt.	Less than 50 per c.c. Beers
28202	9-22-39	Roberts	"	Qt.	Less than 50 per c.c. Beers
28203	9-22-39	Roberts	"	Pt.	Less than 50 per c.c. Beers
28204	9-22-39	Roberts	"	Qt.	Less than 50 per c.c. Beers
28205	9-22-39	Roberts	"	Pt.	Less than 50 per c.c. Beers
28206	9-22-39	Roberts	"	1/2 Pt.	Less than 50 per c.c. Beers
28207	9-22-39	Roberts	"	Pt.	Less than 50 per c.c. Beers
28208	9-22-39	Roberts	"	1/3 Qt.	Less than 50 per c.c. Beers
28209	9-22-39	Roberts	"	Qt.	150 per c.c. Beers
28210	9-22-39	Roberts	"	Qt.	Less than 50 per c.c. Beers
28211	9-22-39	Roberts	"	Qt.	Less than 50 per c.c. Beers

2734

Sample No.	Date Coll.	Collected By	Source	Container	Bacterial Count & Bacteriologist
28212	9-25-39	Roberts	Ogden Dairy Co., 4341 Ogden Ave., Chicago, Ill.	Pt.	Less than 50 per c.c. Beer
28214	9-25-39	Roberts	"	1/3 Qt.	Less than 50 per c.c. Beer
28216	9-25-39	Roberts	"	1/2 Pt.	Less than 50 per c.c. Beer
28218	9-25-39	Roberts	"	Qt.	Less than 50 per c.c. Beer
28220	9-25-39	Roberts	"	Qt.	Less than 50 per c.c. Beer
28213	9-25-39	Roberts	"	Qt.	Less than 50 per c.c. Beer
28215	9-25-39	Roberts	"	Pt.	Less than 50 per c.c. Beer
28217	9-25-39	Roberts	"	Pt.	Less than 50 per c.c. Beer
28219	9-25-39	Roberts	"	Qt.	Less than 50 per c.c. Beer
28221	9-25-39	Roberts	"	Qt.	Less than 50 per c.c. Beer
28222	9-26-39	Roberts	"	Pt.	Less than 50 per c.c. Beer
28224	9-26-39	Roberts	"	1/2 Pt.	Less than 50 per c.c. Beer
28226	9-26-39	Roberts	"	1/3 Qt.	Less than 50 per c.c. Beer
28228	9-26-39	Roberts	"	Qt.	Less than 50 per c.c. Beer
28230	9-26-39	Roberts	"	1/2 Pt.	Less than 50 per c.c. Beer
28223	9-26-39	Roberts	"	Pt.	Less than 50 per c.c. Beer
28225	9-26-39	Roberts	"	Pt.	Less than 50 per c.c. Beer
28227	9-26-39	Roberts	"	Qt.	Less than 50 per c.c. Beer
28229	9-26-39	Roberts	"	Qt.	Less than 50 per c.c. Beer
28231	9-26-39	Roberts	"	Qt.	Less than 50 per c.c. Beer
28232	9-27-39	Roberts	"	Pt.	Less than 50 per c.c. Beer
28234	9-27-39	Roberts	"	1/2 Pt.	Less than 50 per c.c. Beer
28236	9-27-39	Roberts	"	1/3 Qt.	Less than 50 per c.c. Beer
28238	9-27-39	Roberts	"	Qt.	Less than 50 per c.c. Beer
28240	9-27-39	Roberts	"	Qt.	Less than 50 per c.c. Beer

2735

Sample No.	Date Coll.	Collected By	Source	Container	Bacterial Count & Bacteriologist
28233	9-27-39	Roberts	Ogden Dairy Co., 4341 Ogden Ave., Chicago, Ill.	Qt.	Less than 50 per c.c. Beers
28235	9-27-39	Roberts	"	Pt.	Less than 50 per c.c. Beers
28237	9-27-39	Roberts	"	Pt.	Less than 50 per c.c. Beers
28239	9-27-39	Roberts	"	Qt.	Less than 50 per c.c. Beers
28241	9-27-39	Roberts	"	Qt.	Less than 50 per c.c. Beers
28242	9-28-39	Roberts	"	1/2 Pt.	Less than 50 per c.c. Beers
28244	9-28-39	Roberts	"	Qt.	Less than 50 per c.c. Beers
28246	9-28-39	Roberts	"	1/2 Pt.	Less than 50 per c.c. Beers
28248	9-28-39	Roberts	"	Qt.	Less than 50 per c.c. Beers
28250	9-28-39	Roberts	"	Qt.	Less than 50 per c.c. Beers
28243	9-28-39	Roberts	"	Pt.	Less than 50 per c.c. Beers
28245	9-28-39	Roberts	"	Pt.	Less than 50 per c.c. Beers
28247	9-28-39	Roberts	"	Qt.	Less than 50 per c.c. Beers
28249	9-28-39	Roberts	"	Qt.	Less than 50 per c.c. Beers
28251	9-28-39	Roberts	"	Qt.	Less than 50 per c.c. Beers
29641	9-20-39	Kearney	Ogden Dairy Co., 4333 Ogden Ave., Chicago, Ill.	Qt.	Less than 50 per c.c. Beers
29643	9-20-39	Kearney	"	Qt.	Less than 50 per c.c. Beers
29645	9-20-39	Kearney	"	Qt.	Less than 50 per c.c. Beers
29647	9-20-39	Kearney	"	Qt.	Less than 50 per c.c. Beers
29649	9-20-39	Kearney	"	Qt.	Less than 50 per c.c. Beers
29642	9-20-39	Kearney	"	Qt.	Less than 50 per c.c. Beers
29644	9-20-39	Kearney	"	Qt.	Less than 50 per c.c. Beers
29648	9-20-39	Kearney	"	Qt.	Less than 50 per c.c. Beers
29650	9-20-39	Kearney	"	Qt.	Less than 50 per c.c. Beers

2736

Sample No.	Date Coll.	Collected By	Source	Container	Bacterial Count & Bacteriologist
25647	9-29-39	Lynch	Ogden Dairy Co., 4333 Ogden Ave., Chicago, Ill.	Qt.	Less than 50 per c.c. Beers
25649	9-29-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25651	9-29-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25653	9-29-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25655	9-29-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25648	9-29-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25650	9-29-39	Lynch	"	Qt.	
25652	9-29-39	Lynch	"	Qt.	200 per c.c. Beers
25654	9-29-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25656	9-29-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25659	10- 2-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25661	10- 2-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25663	10- 2-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25665	10- 2-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25667	10- 2-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25660	10- 2-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25662	10- 2-39	Lynch	"	Qt.	250 per c.c. Beers
25664	10- 2-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25666	10- 2-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25668	10- 2-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25669	10- 3-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25671	10- 3-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25673	10- 3-39	Lynch	"	Qt.	250 per c.c. Beers
25675	10- 3-39	Lynch	"	Qt.	200 per c.c. Beers
25677	10- 3-39	Lynch	"	Qt.	Less than 50 per c.c. Beers

1686

Defendant's Exhibit No. 18.

2737

Sample No.	Date Coll.	Collected By	Source	Container	Bacterial Count & Bacteriologist
25670	10- 3-39	Lynch	Ogden Dairy Co., 4333 Ogden Ave., Chicago, Ill.	Qt.	150 per c.c. Beers
25672	10- 3-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25674	10- 3-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25676	10- 3-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25678	10- 3-39	Lynch	"	Qt.	Less than 50 per c.c. Beers
25699	10- 6-39	Lynch	"	Qt.	Less than 50 per c.c. Ballard
25701	10- 6-39	Lynch	"	Qt.	Less than 50 per c.c. Ballard
25703	10- 6-39	Lynch	"	Qt.	Less than 50 per c.c. Ballard
25705	10- 6-39	Lynch	"	Qt.	300 per c.c. Ballard
25707	10- 6-39	Lynch	"	Qt.	300 per c.c. Ballard

2738

30736	9-18-39	Claussen	Ogden Dairy Co., 4333 Ogden Ave., Chicago, Ill.	1/2 Pt.	Less than 50 per c.c. Beers
30737	9-18-39	Claussen	"	1/2 Pt.	Less than 50 per c.c. Beers
30738	9-18-39	Claussen	"	Pt.	Less than 50 per c.c. Beers

Lab. No. of Sample	pH of Paraffin Not Heated	pH of Paraffin After Heating Four Hours	Electro- metric De- termination of pH	Color- metric De- termination of pH	Average of Electro- metric and Colormetric Determination of pH	Temperature Degrees F.	Electro- metric De- termination of pH	Color- metric De- termination of pH	Average of Electro- metric and Colormetric pH Reading	Increase in Acidity of (pH) Due to Heating
4340	7.1	7.1	7.1	7.1	7.1					
4341	7.0	7.1	7.1	7.1	7.1					
4342						165°	6.7	6.8	6.8	0.3
4343						165°	6.7	6.8	6.8	0.3
4344	7.1	7.1	7.1	7.1	7.1					
4345	7.1	7.1	7.1	7.1	7.1					
4346						175°	6.0	6.1	6.1	1.0
4347						175°	6.0	6.1	6.1	1.0
4348	7.0	7.1	7.1	7.1	7.1					
4349	6.9	7.0	7.0	7.0	7.0					
4350						185°	5.7	5.7	5.7	1.4
4351						185°	5.7	5.8	5.8	1.2

The above table indicates that, when paraffin is heated, some of the paraffin is decomposed into acid products. This decomposition increases with rise of temperature.

MJM:ACW

2740

DEFENDANT'S EXHIBIT 20

Test started 3-26-39
1% dextrose broth

Experiment No. 16

	B. Coli									Hemolytic Streptococcus									Prodigious									Pyocyanus									Staphylococcus									B. Typhosus								
	Wet Hours			Dry Hours			Wet Hours			Dry Hours			Wet Hours			Dry Hours			Wet Hours			Dry Hours			Wet Hours			Dry Hours			Wet Hours			Dry Hours			Wet Hours			Dry Hours														
	24	48	72	24	48	72	24	48	72	24	48	72	24	48	72	24	48	72	24	48	72	24	48	72	24	48	72	24	48	72	24	48	72	24	48	72																		
1. Plaque.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—																	
2. Organisms.....	—	—	—	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+																		
3. Paraffin.....	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—																		
4. Uncrinkled.....	—	—	—	+	+	+	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—																		
5. Uncrinkled.....	—	—	—	+	+	+	—	—	—	+	+	+	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—																		
6. Uncrinkled.....	—	—	—	+	+	+	—	—	—	+	+	+	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—																		
7. Crinkled.....	—	—	—	+	+	+	—	—	—	+	+	+	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—																		
8. Crinkled.....	—	—	—	+	+	+	—	—	—	+	+	+	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—																		
9. Crinkled.....	—	—	—	+	+	+	—	—	—	+	+	+	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—																		
	0			6			0			5			1			4			0			6			1			3			2			1																				

+ Growth of test organisms.
- No growth of any organisms
(+) Growth of organisms, but not test organisms
Wet—Plaques moistened as stated in report
Dry—Plaques allowed to dry in oven as stated in report.

Crinkled—Plaque crinkled.
Uncrinkled—Plaque intact.

10. Uncrinkled.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11. Uncrinkled.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
12. Crinkled.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
13. Crinkled.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

0 2 2 3

Test started 3-20-39
10% destroyed by fire

[illegible]

- 1. Growth of new organizations
- 2. No growth of any organizations
- 3. Growth of organizations in the past
- 4. Growth of organizations in the future
- 5. Growth of organizations in the present
- 6. Growth of organizations in the past and future
- 7. Growth of organizations in the past and present
- 8. Growth of organizations in the future and present
- 9. Growth of organizations in the past, future and present
- 10. Growth of organizations in the past, future and present and future

Controlled—Blasius instar
Controlled—Blasius instar

Defendant's Exhibit No. 21.

1691

DEFENDANT'S EXHIBIT 21

2741

Test Started March 29, 1939.

Experiment No. 17

Staphylococcus Aureus

	Wet			Con- firmed	Dry			Con- firmed
	24 Hours	48 Hours	72 Hours		24 Hours	48 Hours	72 Hours	
1 Plaque.....	-	-	-		-	-	-	-
2 Organisms.....	+	+	+		+	+	+	
3 Para/fin.....	-	+	+		+	+	+	
4 Uncrinkled.....	-	+	+		+	+	+	
5 Uncrinkled.....	-	+	+		+	+	+	
6 Uncrinkled.....	-	+	+		D	+	+	
7 Uncrinkled.....	-	+	+		+	+	+	
8 Uncrinkled.....	D	+	+		+	+	+	
9 Uncrinkled.....	-	+	+		+	+	+	
10 Uncrinkled.....	-	+	+		+	+	+	
11 Uncrinkled.....	-	-	-		+	+	+	
12 Uncrinkled.....	-	+	+		+	+	+	
13 Uncrinkled.....	-	-	-		+	+	+	
14 Uncrinkled.....	-	+	+		+	+	+	
15 Uncrinkled.....	-	+	+		-	-	-	
16 Uncrinkled.....	-	+	+		-	+	+	
17 Uncrinkled.....	-	+	+		+	+	+	
18 Uncrinkled.....	-	+	+		+	+	+	
19 Uncrinkled.....	-	+	+		-	-	-	
20 Uncrinkled.....	-	-	-		-	+	+	
21 Uncrinkled.....	-	-	-		+	+	+	
22 Uncrinkled.....	-	-	-		+	+	+	
23 Uncrinkled.....	-	+	+		+	+	+	
24 Uncrinkled.....	-	-	+		+	+	+	
25 Uncrinkled.....	-	-	-		+	+	+	
26 Uncrinkled.....	-	+	+		+	+	+	
27 Uncrinkled.....	-	+	+		-	-	-	
28 Uncrinkled.....	-	-	-		+	+	+	
29 Crinkled.....	-	-	-		+	+	+	
30 Crinkled.....	-	-	-		+	+	+	
31 Crinkled.....	-	+	+		-	+	+	
32 Crinkled.....	-	-	-		+	+	+	
33 Crinkled.....	-	-	-		D	+	+	
34 Crinkled.....	-	-	-		-	+	+	
35 Crinkled.....	-	-	-		+	+	+	
36 Crinkled.....	-	-	-		+	+	+	
37 Crinkled.....	-	-	-		+	+	+	
38 Crinkled.....	-	+	+		D	+	+	
39 Crinkled.....	-	-	-		+	+	+	
40 Crinkled.....	-	-	-		+	+	+	
41 Crinkled.....	-	-	-		+	+	+	
42 Crinkled.....	+	+	+		+	+	+	
43 Crinkled.....	-	-	-		+	+	+	
44 Crinkled.....	-	+	+		+	+	+	
45 Crinkled.....	-	-	-		+	+	+	
46 Crinkled.....	-	-	-		+	+	+	
47 Crinkled.....	-	-	-		+	+	+	
48 Crinkled.....	-	-	-		+	+	+	
49 Crinkled.....	-	-	-		+	+	+	

1692
2742

Defendant's Exhibit No. 22.

DEFENDANT'S EXHIBIT 21

Experiment No. 17—Continued

	Wet			Con- firmed	Dry			Con- firmed
	24 Hours	48 Hours	72 Hours		24 Hours	48 Hours	72 Hours	
50 Crinkled.....	—	—	—		—	+	+	
51 Crinkled.....	—	—	—		—	+	+	
52 Crinkled.....	—	—	—		+	+	+	
53 Crinkled.....	—	—	—	20+	+	+	+	46+
	2	19	20		38	46	46	
Comparison Efficiency Tests of Wet and Dry Plaques at Various Temperatures								
65°C 149°F.....	+	+	+		+	+	+	
70°C 158°F.....	—	—	—		+	+	+	
75°C 167°F.....	—	—	—		+	+	+	
80°C 176°F.....	Test Temperature				Test Temperature			

- No growth.
- + Growth of test organism confirmed.
- (+) Growth other than test organisms.
- D Doubtful growth.

April 3, 1939.

2743

DEFENDANT'S EXHIBIT NO. 22.

January 13, 1936.

Dr. Herman N. Bundesen
Board of Health,
Chicago, Ill.

Dear Dr. Bundesen:

We would like to make application to meet the Board of Health as soon as possible in order to present to them the facts regarding delivering milk to the City of Chicago in paper containers instead of bottles.

At that time we will be very glad to have all the facts and figures on what is going on in other cities, like Philadelphia, New York, etc., and will appreciate it very much if you can get permission for us to be present at the next meeting of your Board.

Awaiting your reply, and thanking you for many past favors, we are

Yours truly
Dean Milk Company.

SED:LD.

2744

DEFENDANT'S EXHIBIT NO. 23.

August 2, 1938

Dr. Herman N. Bundesen, President
Board of Health
City Hall
Chicago, Illinois

Dear Dr. Bundesen:

Thank you for your letter of July 25, written in reply to my letter of July 8, which I had addressed to Mr. Paul Krueger, of your Department, and in which we again respectfully requested permission be granted to milk plants located in the City of Chicago to distribute their dairy products in Pure-Pak single service containers in your city.

While, in your direct reply to my letter, you did not state your current position in regard to Pure-Pak containers, you did enclose a carbon copy of a letter written by you, July 22, and addressed to Mr. S. E. Dean, Jr., which does explain your present attitude . . . which is extremely interesting to us.

With reference to the third paragraph of your letter to Mr. Dean—particularly to the fact that your records are not in accordance with the statement in Mr. Dean's letter, regarding favorable reports from investigators—I would like to say, Dr. Bundesen, that, in all investigations we have had conducted by nationally accepted leaders in bacteriology, research, and dairy husbandry, we, too, have found all of them favorably impressed with the sanitary aspects of Pure-Pak containers.

Not having a copy of Mr. Dean's letter to you, nor any knowledge of its contents, we, of course, do not know to whom he referred as a "committee". Neither do we know which member of the "committee" is not in accordance with Mr. Dean's statement, according to your records. However, if you will let us know which member is not in accordance, and what his objections are, we shall be more than glad to get in touch with him and make available to him all data, and make every possible effort to clear up any points about which this gentleman is still doubtful. Will you be kind enough to submit this information to us?

We are aware of the fact that you enforce in Chicago

the Milk Ordinance of the U. S. Public Health Service. We believe this is a very fine procedure on your part, and that the laws of milk sanitation would be generally upon a higher plane today if all local health ordinances followed more closely—at least in spirit—to the model 2745 ordinance laid down by the U. S. Public Health Service.

You see, Dr. Bundesen, we in the single service paper milk bottle industry—and I am speaking particularly for Pure-Pak—have absolutely no quarrel with the National Milk Code and Ordinance, nor with those authorities who operate under it. The National Code and Ordinance is in no way, either in letter or spirit, antagonistic towards single service containers. True, its fundamental principles were written a great many years ago, and would not include the present, more sanitary milk receptacle—because it was then unknown.

We do feel, however, that the omission of reference to single service containers should not deter progressive health authorities, in this country, from the acceptance of something new in milk sanitation, if the thing, or method, is proven to be better by a preponderance of evidence, as is the case with the single service container.

For a period of about 8 months, I have personally kept in very close touch with the sanitary development of single service containers, and with those authorities who have been making detailed investigations as to their merits. Among a great many other authorities have been individuals in the U. S. Public Health Service—particularly Mr. Leslie C. Frank.

Immediately upon receipt of your letter of July 25, I took the liberty of contacting Mr. Frank by telephone in Washington, D. C., and asked him to advise me as to the progress being made toward identifying single service containers by inserting regulatory paragraphs governing their distribution in the National Ordinance.

Mr. Frank told me that a great deal of progress had been made. In fact he told me that his department had completed a "modification of the U. S. Public Health Service Ordinance and Code, to provide for the use and sanitary control of single service containers", and that these modifications had been mailed to each member of his National Advisory Board, for consideration prior to their vote of acceptance or rejection at the forthcoming meeting in Washington.

Now, Dr. Bundesen, we know that you enforce the U. S. Public Health Service Milk Ordinance and Code in your city. The ordinance, as now written, is not antagonistic or unfriendly to single service containers. Mr. Frank has told me that a tentative ordinance for the use and sanitary control of single service containers has already been written by his department. You say that you "look to the U. S. Public Health Service for technical advice with respect to public health problems. The U. S. Public 2746 Health Service has seen fit to recognize single service containers by issuing tentative modification of the code for their use and control. I wonder, then, if this fact will be accepted by you as sufficient evidence that there are no health hazards involved in the use of Pure-Pak containers for dairy products. If so, will you now give us permission to move equipment into Chicago? You could then personally go over the sanitary angles of same, under actual dairy conditions, with a view toward issuing us the necessary permit to begin operations in your city.

I want to assure you of my most sincere appreciation of your consideration of this request, and thank you for a reply at your earliest convenience.

Very truly yours,

*Sales Manager—Pure-Pak Division
Ex-Cell-O Corporation.*

GDS:L

DEFENDANT'S EXHIBIT NO. 24 is omitted at this point as it appears as Exhibit A to the Defendant's Answer.

2786

DEFENDANT'S EXHIBIT NO. 25.

Resolution.

The following Resolution was adopted as a part of the rules and regulations of the Board of Health at its meeting of August 6, 1935:

Whereas, it has come to the attention of the Board of Health of the City of Chicago that butter made from cream from unhealthy cattle has been shipped into the city of Chicago for human consumption; and

Whereas, this condition, if allowed to prevail, will become a distinct health menace to the City of Chicago; and

Whereas, There is not now in force and effect in the city of Chicago any ordinance or rule or regulation of the Board of Health of the City of Chicago affecting the general sale of butter within the said City of Chicago; and

Whereas, It becomes necessary to provide conditions governing the sale and distribution of butter in the city of Chicago; therefore

Be It Resolved By the Board of Health of the City of Chicago, County of Cook and State of Illinois that:

1. It shall be unlawful for any person, firm or corporation to sell, offer for sale or have in his possession for the purpose of selling or giving away to any person or persons in the city of Chicago, County of Cook and State of Illinois any butter other than that made of cream from healthy cows from officially accredited tuberculin tested areas;

2. When butter is sold or offered for sale in the City of Chicago there shall appear on the label the following certification:

"Made of cream from healthy herds from officially accredited tuberculin tested areas";

3. The Board of Health of the City of Chicago or its authorized agents shall seize and condemn any butter sold, offered for sale or given away in the City of Chicago if said butter does not conform to the requirements set forth in sections 1 and 2 of this resolution.

Herman N. Bundesen, M.D.

President, Board of Health.

Louis E. Schmidt, M.D.

Secretary, Board of Health.

Date of publication:

Aug. 10, 1935.

2787

DEFENDANT'S EXHIBIT NO. 26.

Resolution.

The following Resolution was adopted as part of the rules and regulations of the Board of Health at its meeting on November 12, 1935:

Whereas, the present increase in the number of cases of scarlet fever in the city of Chicago is increasing the possibility of milk-borne infections, and

Whereas, it now becomes urgent and necessary for milk and milk products used in the city of Chicago to be dispensed only in unopened original containers, as received from the distributor, therefore

Be it resolved, that all milk and milk products shall be sold, served or dispensed to the final consumer only in unopened original containers as received from the distributor; and no fractional portion or part of any original package or container shall be served or dispensed for consumption, except for manufacturing purposes.

Herman N. Bundesen, M.D.

President, Board of Health.

Louis E. Schmidt, M.D.

Secretary, Board of Health.

2788

DEFENDANT'S EXHIBIT NO. 27.

Resolution.

Whereas, Section 3092 of the Mayor Kelly Milk Ordinance specifies that bacterial plate counts of milk and milk products shall be made in conformity with the latest standard methods recommended by the American Public Health Association, or any other method approved by the Board of Health, and

Whereas, A new seventh edition (1939) of standard methods of milk analysis, bearing the title "Standard Methods for the Examination of Dairy Products", has been issued by the American Public Health Association, and

Whereas, Changes in this edition, as published in the December, 1938, issue of the Journal of the American Public Health Association, include a provision that beginning July 1, 1939, tryptone, glucose, skim-milk agar be used to make bacterial plate counts of milk, and

Whereas, Experience indicates that we may expect higher bacterial counts with this medium than with the standard agar at present used for this work, and

Whereas, The standards for allowable bacterial counts, as expressed in the Mayor Kelly Milk Ordinance, were established from a consideration of the data obtained in the determination of bacterial counts with the standard agar, as specified in the sixth edition (1934) of the Standard Methods of Milk Analysis of the American Public Health Association, and

Whereas, The media recommended in the seventh edition of the American Public Health Association Standard is an enrichment media, and the bacterial counts would consequently be two, three, or more times above those obtained by methods recommended in the sixth edition (1934); therefore; be it

2789 Resolved, That until further notice the bacterial plate counts of milk and milk products be made by the Department of Health in accordance with the standard procedure as published in the sixth edition (1934) of Standard Methods of Milk Analysis of the American Public Health Association.

Herman N. Bundesen, M.D.
President, Board of Health.
Francis A. Dulak, M.D.
Secretary, Board of Health.

Published July 18, 1939.

DEFENDANT'S EXHIBIT NO 28 is omitted at this point as it appears in the record as the Stipulation filed June 29, 1939 in the District Court.

2800

DEFENDANT'S EXHIBIT 29.

The following Resolution was introduced by Doctor Bundesen, asking the City Council to modify the milk ordinance so that single service containers may be used in Chicago:

Since my only concern as President of the Chicago Board of Health with regard to paper containers has been to have as positive assurance as possible that fresh fluid milk can safely be delivered in such containers, and

Because the U. S. Public Health Service, whose standard milk ordinance has been adopted by the City of Chicago

has not heretofor included definite standards for the manufacture of single service containers, and

Because it was believed that we would not be acting in the best interests of safety in permitting the use of these containers until the U. S. Public Health Service had adopted suitable regulations for their manufacture and use, and

Because we have in the past followed closely the requirements of the Service, it was deemed advisable to prohibit the use of these containers in the absence of such regulations, and

Since it has now been brought to our attention that such standards have now been adopted by the Service, it is moved that

The Board of Health recommend to the City Council that Section 154-15 of the Municipal Code of Chicago be amended by adding the words "or in single service containers" after the words "standard milk bottles" in the third sentence of such section, and

That the Board adopt such standards as have been promulgated and recommended by the U. S. Public Health Service for the manufacture and handling of single service containers and which are herewith attached.

2801

U. S. Public Health Service
Washington.

October 7, 1939.

(Section 10 as it will appear in the 1939 printed Public Health Service Milk Code.)

"Sec. 10. Transferring or Dipping Milk; Delivery Containers; Handling of More Than One Grade; Delivery of Milk at Quarantined Residences.

"Except as permitted in this section, no milk producer or distributor shall transfer milk or milk products from one container to another on the street, or in any vehicle or store, or in any place except a bottling or milk room especially used for that purpose. The sale of dip milk is hereby prohibited.

"All pasteurized milk and milk products shall be placed in their final delivery containers in the plant in which they are pasteurized, and all raw milk and milk products sold for consumption in the raw state shall be placed in their final delivery containers at the farm at which they are produced. Milk and milk products sold in the distributors'

containers in quantities less than one gallon shall be delivered in standard milk bottles or in single-service containers. It shall be unlawful for hotels, soda fountains, restaurants, groceries, and similar establishments to sell or serve any milk or milk product except in the original container in which it was received from the distributor or from a bulk container equipped with an approved dispensing device; Provided, That this requirement shall not apply to cream consumed on the premises, which may be served from the original bottle or from a dispenser approved for such service. It shall be unlawful for any hotel, soda fountain, restaurant, grocery, or similar establishment to sell or serve any milk or milk products which have not been maintained while in its possession, at a temperature of 50° F. or less.

"No milk or milk products shall be permitted to come in contact with equipment with which a lower grade of milk or milk product has been in contact unless such equipment has first been thoroughly cleaned and subjected to bactericidal treatment.

"Bottled milk or milk products, if stored in water, shall be so stored that the tops of the bottles will not be submerged.

2802 "It shall be the duty of all persons to whom milk or milk products are delivered to clean thoroughly the containers in which such milk or milk products are delivered before returning such containers. Apparatus, containers, equipment, and utensils used in the handling, storage, processing, or transporting of milk or milk products shall not be used for any other purpose without the permission of the health officer.

"The delivery of milk or milk products to and the collection of milk or milk products containers from residences in which cases of communicable disease transmissible through milk supplies exist shall be subject to the special requirements of the health officer.

"The purpose of this section is to prevent, so far as practicable, exposing the milk to contamination from the time it is placed in its container at the dairy or milk plant until the time it is delivered to the final consumer. The practice, formerly quite prevalent, of transferring milk from a bulk container located in the delivery vehicle to the household container, either by dipping or by drawing from a faucet, is dangerous because of the opportunity for contamination

by dust and flies or manually. This practice has now practically died out, but may occasionally be discovered by the inspector.

"Another practice on the part of some distributors, still occasionally observed, is the filling of returned bottles, which have not been treated with a bactericide, with milk or milk products along the milk route, particularly at retail depots. This section expressly forbids this practice.

"The use of standard milk bottles or single-service containers for delivering milk and milk products in quantities less than one gallon is required in order to prohibit delivery in such containers as buckets, fruit jars, etc., which may be difficult to wash and to subject to adequate bactericidal treatment, which cannot be filled and capped with the proper equipment used for these purposes, and which it is often difficult to label properly.

"The portion of this section dealing with the method of selling or serving of milk or milk products in restaurants, groceries, etc., is designed to prevent contamination of the milk in handling or serving. Such contamination is frequently observed in the dipping of milk from a bulk container into the container or glass in which it is sold or served to the customer, the container or glass frequently overflowing and the milk coming in contact with the fingers and then dripping back into the bulk container from which it was dipped. Furthermore, even if milk is poured into glasses from bottles in the kitchen there is more opportunity for carelessness and consequent contamination than if it is served in the original container, because the transferring is done out of sight of the customer.

2803 "The selling or serving of milk in the original container has been found to be practical. In fact, many establishments report increased sales because of the reaction of the consumer to the improved service sanitation, and to the fact that he is assured of receiving all of the cream in the original container.

"However, there are rapidly being developed sanitary bulk dispensers which may result in reducing the cost of milk distribution. For this reason this section is so worded as to permit the selling or serving of milk or milk products from approved sanitary bulk dispensers which insure correct mixing of the milk and cream. The health officer should not approve any bulk dispenser which does not satisfy the following design and operation requirements:

"(1) It shall comply with the requirements of item 10p, construction and repair of equipment.

"(2) No surfaces with which milk or milk products come in contact shall while in use be accessible to manual contact, droplet infection, dust, or flies, but the delivery orifice may be exempted from this requirement.

"(3) All parts of the dispensing device with which milk comes in contact, including any measuring device, shall be cleaned and subjected to bactericidal treatment at the milk plant, not at the retail vendor's establishment.

"(4) The dispensing device shall be filled and sealed with two seals at the milk plant in such manner as to make it impossible to withdraw any part of its contents without breaking one seal and impossible to introduce any substance without breaking the other.

"(5) It shall mix the milk and cream thoroughly and automatically with each dispensing operation. This requirement may be waived in the case of milk products which remain homogeneous without mixing.

"In the case of milk drinks mixed at soda fountains, etc., this section shall be interpreted as requiring that the milk used shall include the entire contents of the original container or shall be from an approved bulk dispenser. The sanitary control of methods used in mixing such milk drinks is considered to be within the province of a restaurant or food ordinance rather than the milk ordinance.

"In enforcing this section the health officer may make an exception in the case of cream served with coffee, cereals, etc., as in this case it is impracticable to serve in the original container because of the fact that it is impossible for the distributor to deliver cream to the establishment in the unit-size containers which would be required in each case. Furthermore, the use of expensive bulk dispensers as described above may not be defensible requirement for all soda fountains, restaurants, and similar establishments in the case of cream used for coffee, cereals, etc. For such service the health officer may permit transferring from the original bottle, or from a pump, urn, or other dispenser which complies with requirements (1) and (2) above, and which is filled in a sanitary manner, kept clean, and frequently subjected to bactericidal treatment complying with the requirements of item 12p.

"Bottled milk should not be submerged in water for cooling because the contraction of the contents accompanying the cooling process may create a sufficient vacuum within the bottle to suck in water around the edge of the cap. Tests have shown that milk may thus be contaminated."

2805

Treasury Department

In replying
Address the Surgeon General U. S. Public Health Service
U. S. Public Health Service

Washington
June 27, 1939.

Sanitation Section
D. Q. Division

Public Health Service Sanitation Advisory Board Action
on Single Service Containers, Etc. at June 1939 Meeting.
The following sentence is to be added to items 10p and
12r of the forthcoming 1939 printed edition of the Public
Health Service Milk Ordinance:

"The manufacture, packing, transportation, and handling of single-service containers and container caps and covers shall be conducted in a sanitary manner."

The following paragraph is to be added to Public Health Reason under items 10p and 12r:

"Single-service containers, etc. which have not been manufactured and handled in a sanitary manner may contaminate the milk."

The following material is to be added under Satisfactory Compliance of items 10p and 12r:

"(5) The manufacture, packing, transportation and handling of single-service containers and container caps and covers are conducted in accordance with the following requirements. Inspections required herein may be made by the health officer or by any agency authorized by him.

(a) The buildings and rooms in which single-service containers and container caps and covers are manufactured, packed, stored, and handled shall be clean, well lighted and ventilated, and free of dust and flies, as prescribed in items 1p, 2p, 3p, 4p, 6p, 7p, 8p, and 11p.

(b) The average bacterial plate count of the stock from which single-service containers and container caps and covers are made shall not exceed 100 colonies per gram. No substance shall be present in finished single-service containers and container caps and covers which is toxic.

(c) All operations at the fabrication plant and during transportation of the manufactured articles shall be so conducted as to reduce to a minimum the possibility of contaminating the manufactured articles, as prescribed in items 13p, 14p, and 15p.

2806 (d) All of those parts of machinery and equipment with which the article being manufactured comes in contact shall be kept clean.

(e) All single-service containers and container caps and covers shall be so treated as to be as impervious to milk and milk products as practicable.

The porous condition of paraffined containers now available and the sloughing off of particles of paraffin into the product are undesirable, and manufacturers of single-service containers are urged to make every effort to provide a non-absorbent non-flaking surface.

(f) All single-service containers and container caps and covers shall prior to use be given bactericidal treatment equivalent to contact with paraffin for at least 30 seconds at at least 180° F.* in approved equipment operated in an approved manner. The bactericidal treatment equipment shall be provided with approved indicating and recording thermometers, and shall be so designed as automatically to insure the required temperature and contact time.

* This time-temperature subject to change as a result of further studies being conducted by National Institute of Health.

2807

DEFENDANTS' EXHIBIT 30.

TREASURY DEPARTMENT

**U. S. Public Health Service
Washington**

(Cut)

In Replying

Address the Surgeon General

U. S. Public Health Service

**(Stamp) Received Jul 5—1939 Board of Health
June 27, 1939**

**Dr. Herman N. Bundesen
President, Board of Health
Chicago, Illinois**

Dear Dr. Bundesen:

In response to your communication of June 23, there is attached a copy of the regulations governing the manufacture, packing, transportation, and handling of single-service containers, milk bottle caps and covers, as adopted by the Public Health Service Sanitation Advisory Board at its June 1939 meeting.

Very truly yours,

**Thomas Ranan
Surgeon General**

Enc.

WND:hb

CC: State Health Officer

CC: Dr. Haskell

2808

DEFENDANTS' EXHIBIT 31.

Proposed Standards for Paper Milk Containers:

The Dairy Products Section of the Chicago Board of Health reported through Dr. Arnold that experiments concerning the use of paper containers for the distribution of milk and milk products have been continued, and further studies have been made of the literature which has been published pertaining to this subject, and that, from this further study, the Dairy Products Section has formulated requirements pertaining to the use of paper containers.

Doctor Arnold stated that it was his judgment, and the judgment of the Dairy Products Section, that the use of paper containers may be permitted, without attendant hazards to the public health, when the principles of the requirements enumerated below are complied with and carried out.

Doctor Arnold also stated that the requirements enumerated below are substantially identical with the following suggestions which have previously been made by this section:

"The following general principles should be followed in the consideration of the sanitary quality of single service paper containers for milk and milk products.

The surface of the container in contact with milk shall be smooth and unbroken. The surface of the container in contact with milk shall be impermeable and nonporous.

The surface of the container in contact with milk shall be sterile or constructed of such materials that it can be disinfected in the dairy before use.

The contents of the container shall not be contaminated by microorganisms, chemicals or other substances contained in the material forming the wall."

The following proposed standards to be met by paper milk containers were prepared by the dairy inspection section and were approved by Doctor Arnold. They were submitted to the Board by Doctor Arnold, and, after discussion, motion was made by Doctor Arnold, seconded by Mr. Reynolds and carried, that it is the sense of the Board that the use of paper containers may be permitted without attendant hazards to public health when the principles of the following proposed standards are carried out:

2809 Proposed Standards To Be Met by Paper Milk Containers

1. The surfaces of paper milk containers coming in contact with milk shall be impermeable and non-porous, and shall be smooth and unbroken. Paraffin-immersion treatment, as employed at present, is not considered as meeting this definition.

2. The surface of the container in contact with milk shall be sterile or constructed of such materials that it can be disinfected in the dairy before use.

3. The material forming the surface shall be inert and

of such composition that it will not react with milk, or "flake-off" into the milk. No toxic material which may be deleterious to health shall be present in paper, moisture-proofing materials, adhesives or other materials used in the manufacture or subsequent treatment of paper milk containers.

4. Containers shall be made from virgin pulp or other suitable material and such board or material, prior to moisture-proofing, shall not have a bacterial count exceeding 500 colonies per gram.

Paper and similar materials to be used in the fabrication of milk containers shall be manufactured under the supervision and inspection of an official agency such as the United States Public Health Service. Such materials shall be manufactured under sanitary conditions and the plant, surroundings, equipment and method in paper 2810 mills and conversion plants shall meet the requirements of the United States Public Health Service for grade A milk plants.

Paper rolls, packages or boxes in which milk containers or materials for fabricating milk containers are shipped shall bear an approval stamp of the official inspection agency and such stamp shall identify, by number or other approved method, the source of the product.

Only water meeting the Federal standard for safe drinking water shall be used in the treatment of pulp or other materials and in any subsequent treatment of containers.

Unless used immediately after manufacture, container blanks shall be wrapped, sealed and protected from contamination until used. When used the outside sheet on rolls or the top and bottom sheets of sheeted stock shall be discarded in all cases.

5. All stock and containers shall be handled mechanically in the conversion plant as far as possible. Following fabrication, until final filling and sealing in the milk plant, container surfaces with which milk or milk products come in contact shall be protected from contamination.

6. Throughout the processes of printing, folding, sealing, adhesive application, or packing prior to shipment to milk plant, all stock and containers shall, as far as 2811 feasible, be handled mechanically and be suitably wrapped or packaged before shipping.

Packaged container stock at milk plants shall be kept in a clean, dry place and opened only for immediate use. Where it is necessary to form or manipulate containers,

all surfaces with which milk or milk products may come in contact, shall be protected from human handling.

7. The gluing or sealing of container board shall be accomplished by means of non-fermentable adhesives. Adhesives must not contaminate containers in any manner, nor contain any substance in amounts detrimental to health.

8. Cases for shipping empty containers shall be constructed of board or wrapping designed adequately to protect containers from injury or abuse due to tearing or breaking. Containers shall be stored in sealed, dry, unbroken cases, in a dry, vermin-proof location. Partly empty shipping cases of prefabricated containers shall be resealed, rowrapped, or otherwise protected from contamination during storage. Empty containers shall not be exposed to contamination at any time.

The opening of shipping cases and the storing of containers shall be done in a room separate from other milk handling equipment.

9. Equipment used for moisture-proofing, bactericidal treatment, filling or otherwise handling paper or similar materials to be used for milk containers shall conform to the requirements of the United States Public Health Service for milk handling equipment used in grade A milk plants.

10. In the filling and handling of the container, milk shall be so handled to prevent adulteration, and the contents of the container shall not be contaminated by microorganisms, chemicals or other substances contained in the material forming the wall.

May 11, 1939.

2475 And on, to wit, the 27th day of April, A. D. 1940 Filed
Apr. 27,
1940.
came the Defendants by their attorneys and filed in
the Clerk's office of said Court their certain Objections to
Depositions in words and figures following, to wit:

2476 IN THE DISTRICT COURT OF THE UNITED STATES.
* * (Caption—316) * *

OBJECTIONS TO DEPOSITIONS.

Filed Feb. 14, 1940. Jacob I. Grossman, Master in
Chancery.

The defendants object to the following portions of the
depositions offered in evidence in this case upon the
grounds stated below:

1. To all testimony contained in the depositions taken
in New York City on April 25, 1939 and at Philadelphia,
Pennsylvania on April 27, 1939, which pertains to the use
of paper containers for milk in municipalities other than
the City of Chicago, upon the ground that such testimony
is neither relevant nor material to any issue in this case.

2. (a) To plaintiff's Exhibits 5, 6, 7, 8 and 10 (letters
identified during the taking of depositions at Philadelphia
on April 27, 1939) because each of said exhibits is incom-
petent in that it contains statements of the opinion of the
respective writer concerning the sanitary qualities of
paper milk containers. These statements and the ex-
2477 hibits containing them constitute secondary and
hearsay evidence and their admission would deny to
the defendants their right of cross-examination.

(b) Said exhibits were identified and offered as permits
received from various municipalities. It appears from the
face of each of the exhibits that they are not such permits
but are letters written at the solicitation of a witness for
the plaintiff. (Philadelphia Deposition, pp. 66-72.)

Barnet Hodes,
Corporation Counsel.

Walter V. Schaefer,
Assistant Corporation Counsel.

Charles P. Horan,
Assistant Corporation Counsel.
Attorneys for Defendants.

Filed
pr. 27,
1940.

2452 And on, to wit, the 27th day of April, A. D. 1940, there was filed in the Clerk's office of said Court a certain Master's Report in words and figures following, to wit:

2454 IN THE DISTRICT COURT OF THE UNITED STATES.
* * (Caption—316) * *

MASTER'S REPORT.

Pursuant to the reference I held hearings at which the following were present: Messrs. Gariepy & Gariepy, by Mr. Fred A. Gariepy, representing the plaintiff, and Mr. Barnet Hodes, Corporation Counsel of the City of Chicago, by Messrs. Walter V. Schaefer and Charles P. Horan, Assistant Corporation Counsel representing the defendants. At the same time, the evidence was being taken as a deposition in the case of Ex-Cell-O Corporation vs. City of Chicago, et al., D. C. No. 456, pending in this court. The attorneys for the plaintiff in that case were Messrs. Eckert & Peterson and Mr. Owen Rall, who appeared by Mr. Owen Rall.

2455 Plaintiff asks for an injunction to restrain defendants, the City of Chicago and the Board of Health of the City, from interfering with plaintiff's sale of milk in Pure-Pak paper milk containers. It also asks for a declaratory judgment that paper milk bottles are "standard milk bottles" within the meaning of the Chicago Milk Ordinance, so that the ordinance does not prohibit the use of said containers; and, in the alternative, if those containers are not standard milk bottles and are prohibited, that the ordinance and regulations thereunder are invalid.

Plaintiff applied for a permit to use single service containers in Chicago. The Board of Health neither granted nor denied the application. In July 1938, on the ground that the safety of paper containers had not yet been established, the Board stated to plaintiff that it was waiting the recommendation of the United States Public Health Service, whose model ordinance and advice furnish the lead for municipalities throughout the country (Stipulation, quoted in ptfs. brief pp. 18-19). Plaintiff, having asked in January 1939 for a permit, filed this suit in Feb-

ruary 1939. In June 1939 the Sanitation Advisory Board of the United States Public Health Service made a report (Ptf. Ex. 61) in which among other things it recommended that the model ordinance should be amended so as to include paper containers in addition to standard milk bottles. In that report, however (p. 3), the Board included a criticism of paper containers, as follows:

"The porous condition of paraffined containers now available and the sloughing off of particles of paraffin into the product are undesirable, and manufacturers of single-service containers are urged to make every effort to provide a non-absorbent non-flaking surface."

In October 1939 the United States Public Health Service amended its model ordinance to add paper containers (Ptf. Ex. 92; Def. Ex. 29; Rec. 1567). Thereafter on October 16, 1939, the Chicago Board of Health recommended to the City Council similar action.

In the meantime hearings in this suit had begun and were being held at such times as expert witnesses from other states could appear. The defendants' case was closed on October 13, 1939. On October 16, 1939, the Board of Health made its recommendation to the City Council. On October 19, 1939, defendants requested and were granted leave to reopen proofs and submit further testimony. Accordingly on October 23rd the defendants offered further evidence and again closed their case. The plaintiff completed its proofs on October 26th. The recommendation of the Board of Health was referred by the Council to its Committee on Health. While the matter was under consideration by the Committee, plaintiff's brief was not filed before me. On November 22, 1939, the Committee on Health voted to defer action upon an amendment to the ordinance pending the outcome of this case. Thereafter briefs were filed in the case at bar,—the plaintiff's brief on December 19, 1939, the defendants' brief on January 27, 1940, and the plaintiff's reply brief on February 15, 1940. Further proceedings were had in the case on March 9, 1940, the transcript of which is made a part of the record. Additional memoranda based upon those 2456 further proceedings were filed on March 15, 1940, and on April 13, 1940. On April 26, 1940, the record was reopened for the purpose of formally incorporating certain facts pertaining to the action of the City Council. The record consists of 2214 pages which I certify as com-

plete, true, and correct, and a number of exhibits, which are herewith transmitted.

Plaintiff is a Michigan corporation licensed to do business in Illinois. It has a milk plant at Chemung, Illinois, and sells milk at wholesale and at retail in a number of cities and villages in Illinois. In quantities of less than one gallon it delivers its milk only in Pure-Pak paper containers and does not use glass milk bottles. In the expectation that it would be permitted to use its paper containers for the sale of milk in Chicago, it obtained contracts for such sale in Chicago, and, in order to fulfill the contracts, it purchased a number of milk trucks and other equipment, and made contracts with milk producers for a large supply of milk. On account of its inability to sell the milk in paper containers in Chicago, it has been unable to use its trucks and equipment which as a consequence have suffered a large depreciation in value, it has had to take large losses on the milk supply which it had contracted to purchase, and has lost the profit which it would have made from such sales in Chicago.

I find that the matter in controversy exceeds, exclusive of interest and costs, the sum or value of \$3,000 and is between citizens of different states, and that the court has jurisdiction of the subject matter and the parties.

Section 3094 of the Revised Chicago Code (Defts. Ex. 24, p. 76) provides (*italics added*):

“• • • All pasteurized milk and milk products shall be placed in their final *delivery* containers in the plant in which they are pasteurized, and all certified milk and milk products sold for consumption in the raw state shall be placed in their final *delivery* containers at the farm at which they are produced. Any milk or milk products sold in quantities of less than one gallon shall be *delivered in standard milk bottles*; *provided, however*, that nothing herein contained shall be construed to prohibit hotels, soda fountains, restaurants, and similar establishments from *dispensing* milk or milk products from sanitary *dispensers* approved by the board of health.”

The issues are whether plaintiff's paper container is a “standard milk bottle” within the meaning of the Chicago Milk Ordinance, and, if not, whether the ordinance is invalid. Both parties take the position that if the paper container is not a standard milk bottle, the ordinance prohibits the use of paper containers.

A paper container is not a "standard milk bottle":

Plaintiff's container is a prismatic box about $6\frac{1}{2}$ inches high and $4\frac{1}{2}$ inches wide, with a gable top, made of paper and paraffined on the inside and outside (Rec. 508). In the middle of one of the slanting surfaces of the gable top is a so-called pouring lip which is about an inch square and which is pulled out like an ear when milk is to be poured out of the container.

On January 4, 1935, when the ordinance was passed, the standard milk bottle was, and up to the present time in Chicago has been, made of glass. Glass milk 2457 bottles have constituted a distinct and definite class of bottles (see Report of U. S. Biennial Census of Manufacturers for 1935, quoted in Defts. brief p. 9). Dr. Tracy, plaintiff's witness, testified that if he were selling milk at retail in Chicago, the term "standard milk bottle" would mean to him a glass milk bottle of a certain size and shape (Rec. 681-4). Its shape has certain general characteristics, of which courts will take judicial notice,—narrower at the top than at the bottom and bulging to its full width at about the middle of the bottle. It is quite apparent that a person of average intelligence would experience no difficulty in selecting a milk bottle from an array of other bottles.

On the other hand, paper containers are of comparatively recent development and were not in contemplation at the time the ordinance was passed. To classify plaintiff's paper container as a "bottle" would require considerable straining of the definitions of a bottle.

The general understanding of standard milk bottles has always been that they are of the familiar shape and are made of glass. This is reflected by the rules and regulations approved by the United States Public Health Service and by the City of Chicago for the filling and cleaning of milk bottles. One of the reasons stated (Defts. Ex. 24, p. 77) for requiring standard milk bottles was the difficulty of washing other containers and subjecting them to bactericidal treatment. Washing must have reference to a glass milk bottle. The report of the Chief of the Bureau of Animal Industry to the Secretary of Agriculture dated September 1, 1938, shows clearly a distinction between the glass milk bottle and the single service paper container (Stipulation, Rec. 1027-49, copied in ptfs. main brief, p. 14). That report also shows that up to its date, September 1,

1938, paper containers were not being used to any extent in delivering milk to homes.

Plaintiff itself has distinguished between bottles and paper containers. In the original application to the Board of Health, plaintiff asked to present the facts regarding delivery of milk "in paper containers instead of bottles" (Defts. Ex. 22). The sales-manager of Ex-Cell-O Corporation which manufactures the Pure-Pak container, in a letter to the Board of Health dated August 2, 1938, stated that the Code and Ordinance of the United States Public Health Service were written a great many years ago and would not include the present, more sanitary receptacle—because it was then unknown (Defts. Ex. 23, p. 2, quoted in defts. brief pp. 12-13).

I find that the standard milk bottle specified in the ordinance is a glass bottle of the type, shape and proportions well-known to the trade and the community in Chicago as having been used for many years for the delivery of milk at retail. I also find that plaintiff's paper container is not a standard milk bottle within the meaning of the ordinance.

Validity of the ordinance:

I shall first dispose of two contentions that the ordinance is invalid for indefiniteness and for delegation of legislative power. I shall then deal with the contentions based upon alleged unreasonableness, deprivation of property without due process, and discriminatory enforcement.

2458 It is insisted that the ordinance is invalid because

it does not define what constitutes a standard milk bottle, and that the ordinance thus contains an invalid delegation of legislative power. I find that the phrase "standard milk bottle" is self-definitive. The only thing that the ordinance leaves to be done is the ascertainment of a fact. As hereinabove suggested, what constitutes a standard, customary, or ordinary milk bottle is a fact which may even be judicially noticed. Such enactments are valid (e. g., *People v. Flaningam*, 347 Ill. 328, 333-5, and cases cited, "moral character"; *Proffitt v. County of Christian*, 370 Ill. 534. See also *U. S. v. Chemical Foundation, Inc.*, 272 U. S. 1, 12 "in the public interest"; *Buttfield v. Stranahan*, 192 U. S. 470, 491, 493, 496 (standard of purity, quality and fitness for consumption)).

It is also urged that the requirement for delivery in "standard milk bottles" must fall on account of the al-

leged invalidity of the proviso that that requirement shall not prohibit hotels, soda fountains, restaurants, and similar establishments from dispensing milk or milk products from "sanitary dispensers" approved by the Board of Health. The whole section up to the proviso refers to the delivery of milk; the proviso refers to dispensing of milk from sanitary dispensers. These dispensers contained the milk in bulk, which was to be poured into a glass to be served to the patron (see Defts. Ex. 29, U. S. Public Health Service bulletin, p. 3, par. 2). The thought behind the proviso apparently was that in the case of restaurants and other such places where milk was consumed upon the premises, the milk might be considered as delivered upon its arrival at such place, and that the subsequent dispensing of the milk from the large container into glasses for service to the patrons in the place should not be considered as another delivery, but that the milk should be dispensed from sanitary milk dispensers. The theory was that if the dispenser were sanitary, the chances of contamination of the milk in such cases would be so much less than in the case of transfer from one container to another between pasteurizing plant or farm and the place of delivery, as to warrant the classification. I cannot say that this was not a reasonable basis for classification (cf. *Block. v. City of Chicago*, 239 Ill. 259, 261).

Neither can I say that there is a delegation of legislative power to the Board of Health in the matter of approving "sanitary dispensers" from which restaurants and other such places may dispense milk. The ordinance has prescribed definitely that such dispensers must be sanitary. That is a mere detail, a fact to be ascertained and maintained by the Board of Health. The Board is not in my opinion given legislative power by this proviso (see *People v. Flaningam*, 347 Ill. 328, 333-5, and other cases cited supra; and *Mayor v. Bloecher & Schaff*, 132 Atl. 160 (Court of App. of Md.) ("sanitary")).

Furthermore, since plaintiff herein does not come within the classification of restaurants and other such places, and has not as a member of such class applied for and been denied a permit for a sanitary dispenser, I find that the plaintiff is in no position to complain of the alleged invalidity of the proviso.

2459 I cannot say that the City Council would not have passed the section without the proviso. The proviso seems to me to be a mere guard against misinterpretation

of the section. It might well be that, even without the proviso, the serving of milk by a restaurant to its patrons would not be considered as a "delivery" of milk within the meaning of the ordinance.

Moreover, at all times since plaintiff applied for a permit in this case, the Board of Health had in effect a resolution adopted on November 12, 1935, concerning the sanitary dispensers which it would approve under this proviso (Defts. Ex. 26). That resolution provides "that all milk and milk products shall be sold, served or dispensed to the final consumer only in unopened original containers as received from the distributor; and no fractional portion or part of any original package or container shall be served or dispensed for consumption, except for manufacturing purposes." It seems to me that the question here raised is moot, in that no actual discrimination or prejudice to this plaintiff has yet been shown (e. g., *Jewel Tea Co. v. City of Troy*, 80 F. (2d) 366, 368-9 (CCA 7)).

I accordingly find that plaintiff's contentions based upon alleged invalidity of the proviso should be overruled.

This brings us to the important issue whether the ordinance is a legitimate exercise of the police power.

The controlling principles are well established. An act under the police power may not be arbitrary but must have a reasonable and manifest relation to the protection of the public health, safety or welfare. It must be an appropriate means and adapted to the object sought (*Jones v. Portland*, 245 U. S. 217, 256; *Pacific States Box & Basket Co. v. White*, 296 U. S. 176, 182; *Koy v. City of Chicago*, 263 Ill. 122, 130-1). In health measures (*Gundling v. City of Chicago*, 176 Ill. 346, 349), particularly those relating to milk, great latitude is given to the legislative body (*Koy v. City of Chicago*, 263 Ill. 122, 130-1; *Lieberman v. Van de Carr*, 199 U. S. 552, 561-2).

In the *Koy* case the court declared that regulation of the sale of milk is "an imperative duty" in order that the milk shall not only be free from disease but shall be pure and wholesome, and that the power to regulate extends not only to the health and keeping of the cows but also to the character of the receptacles in which milk is contained. The court also said that the object is the preservation of public health, and, as a means to that end, protection of the public against "dishonest vendors of milk."

It may be observed that the "means" which may be dealt with need not itself be a source of disease or peril

to health. The police measure is not necessarily narrowly confined to health, but may be enacted for the more general purpose of the public welfare.

Before an act will be held unconstitutional, its invalidity must palpably and unmistakably appear (*Schmidinger v. City of Chicago*, 226 U. S. 578, 588-9, affirming 245 Ill. 317). This rule of decision has also been somewhat differently phrased, that is to say, that the invalidity must appear beyond a reasonable doubt (*People v. Brady*, 272 Ill. 401, 407; *Joel v. Bennett*, 276 Ill. 537, 539), and that the invalidity must be "entirely free from doubt" (*United States, ex rel v. Quincy*, 4 Wall. 536, 549). The attack must fail if there is a conceivably rational ground on which the legislative body may have based its judgment (*Pacific States Box & Basket Co. v. White*, 296 U. S. 176, 182; *Sinking Fund Cases*, 99 U. S. 700, 718).

If the power to regulate exists, it is a matter of legislative judgment whether there shall be entire suppression rather than regulation (*Powell v. Pennsylvania*, 127 U. S. 678, 685; *Price v. Illinois*, 238 U. S. 446, 452). A valid general regulation or prohibition affecting a class of persons or things is not rendered invalid because a particular person or thing, belonging to the class, considered alone, is harmless. Thus in *Hacker v. Barnes*, 166 Wash. 558, 7 Pac. (2d) 607, the court held that the fact that the plaintiff's cattle were healthy did not constitute a reason for enjoining against the tuberculin test. In *City of Milwaukee v. Childs Co.*, 217 N. W. 703, the Wisconsin Supreme Court sustained an ordinance requiring the sale of milk in original containers even though defendant's dispensing method was as sanitary as that prescribed by the ordinance. See also *Hebe v. Shaw*, 248 U. S. 297, 303.

If there may be a reasonable difference of opinion, the legislative judgment controls (*Price v. Illinois, supra*; *Hebe v. Shaw, supra*). Thus enactments requiring vaccination or tuberculin tests have been sustained, notwithstanding evidence by objectors that such inoculations were in fact harmful and injurious (*Jacobson v. Massachusetts*, 197 U. S. 11, 30-1; *Adams v. Milwaukee*, 228 U. S. 572, 582, 583-4).

In *Laurel Hill Cemetery Co. v. San Francisco*, 216 U. S. 358, 365, the court in an opinion by Mr. Justice Holmes upheld an ordinance prohibiting burial within the city and county limits. The opinion went so far as to say:

"If every member of this bench clearly agreed that

burying grounds were centers of safety, and thought the Board of Supervisors and the Supreme Court of California wholly wrong, it would not dispose of the case.

• • • Opinion still may be divided, and if, on the hypothesis that the danger is real, the ordinance would be valid, we should not overthrow it merely because of our adherence to the other belief. Similar arguments were pressed upon this court with regard to vaccination, but they did not prevail. On the contrary, evidence that vaccination was deleterious was held properly to have been excluded. *Jacobson v. Massachusetts*, 197 U. S. 11; see *Otis v. Parker*, 187 U. S. 606, 608, 609."

Legislation must be sustained, even if the rational ground therefor is established by less than a preponderance of the evidence, and even if the court from a preponderance of the evidence may reach an opposite judgment.

I shall now state my findings and comment upon the significance of the many steps in the manufacture, processing, and filling of paper containers. I shall also state my findings and comment upon the six particulars or characteristics which the City's brief sets forth as sufficient basis for legislative prohibition. The City's six divisions are:

Paper containers are absorbent;

Paraffin from the paper containers gets into the milk;

Paper containers are not sterile; they do not receive effective bactericidal treatment before they are filled with milk;

2461 Paraffin oxidizes at high temperatures, so that an odor is imparted to the containers;

Effective sanitary control of paper containers requires supervision and control of all processes in the manufacture of paper and its conversion into containers;

Paper containers are not transparent, and the cream does not rise to the top in them.

Manufacture, processing, and filling of paper containers:

The paper board is made in paper mills usually near wooded areas, in states other than Illinois. The paper for plaintiff's Pure-Pak container is made at the Cherry River mill in West Virginia. Three types of material are used for containers (Rec. 80): prime pulp, which is used in the manufacture of containers for milk and dairy products; a second class, not necessarily prime, which is high

grade, which may be used for containers of dried food, such as breakfast food; and a third class, called the waste paper class, consisting of material collected from unknown sources, used in the manufacture of boxes such as shoe boxes. The evidence is that plaintiff's paper board is made out of prime spruce pulp.

The logs for the prime spruce pulp are cut, washed, chipped, and placed in chemical digesters containing a cooking acid. The chips are digested under high steam pressure. This removes the encrusting materials. The cooking liquor is then washed out and the pulp is washed and then bleached to whiteness. The water is pressed out and the fibers are disintegrated in water. At Cherry River mill, chlorine, which has the effect of a bactericide (Rec. 100-1) is placed in the water, (Rec. 64). Water is such an important part in the making of pulp and paper, that water should not contain bacteria. The pulp is further diluted in the machine with water which according to the record is sterile at Cherry River mill (Rec. 64).

The fibrous material then goes to a machine where the fibers are webbed or matted together and the water drawn from the fibers. The matted fibers then go over a series of steam heated cylinders or rolls, which at their surface are about 360° F. The temperature of the surface of the paper board in contact with the heated cylinder is between 175 and 200° F. The moisture of the paper board is thus reduced, but the paper board still contains some moisture.

As the paper board comes off of the machine, it is sprinkled with water (which at Cherry River is chlorinated) and ironed out to give it a gloss. It is then either rolled or cut into flat sheets, and wrapped in clean paper and sealed. At Cherry River, the paper board is then transported to a freight car which has been cleaned and lined with paper, and shipped to the converting plant of the Gardner-Richardson Co. at Middleton, Ohio, which cuts and trims the flat paper and prints on it as directed (Rec. 124).

The evidence is that at the Cherry River mill the employees engaged in the operations observe sanitary precautions as to clean hands and behavior; that there are numerous hand-washing facilities close to the operations; that the pulp and stock are mechanically handled, and the paper board is not allowed to come in contact with

2462 the floor; and that the paper board does not come into manual contact other than as may be necessary for adequate inspection.

In the case of Cherry River paper board, the Gardner-Richardson Company sends some of it to plaintiff's dairy ready for use in the Ex-Cell-O machine. That machine forms, paraffins, and fills the container (Rec. 87). As part of the filling process at plaintiff's dairy, the paper board receives a paraffin bath of fully refined paraffin at a temperature of from 172 to 176° F. The primary purpose of the paraffining is to provide moisture-proofing for the paper container (Rec. 85). In addition, the paraffining may act as an additional sanitary safeguard in that certain bacteria may be killed by the temperature of the melted paraffin (Rec. 85-6). However, paraffining will not kill all of the bacteria in the paper (Defts. Ex. 28, p. 2). It is also possible that the paraffing seals in any organisms that may be within the paper board (Rec. 86). On a hot day the paraffin on the board may become soft. Paraffin is shipped in slabs contained in burlap bags which are lined with muslin or some clean material. That paraffining does not effectively sterilize is confirmed by the recognition of the importance of sanitary conditions at the mill.

Two men are used on plaintiff's Ex-Cell-O machine for processing or filling in the paper board blanks and turning out the finished containers of milk. From the time the blanks are inserted in the machine until they come out sealed and filled with milk, the only manual handling is when the blanks are placed in the machine and after the containers have been filled, sealed and stapled and are ready for delivery (Rec. 90). The wire used in the containers is heated to a high temperature at the time it is inserted (Rec. 90). Ordinary sanitary precautions are taken as to the employees.

Facilities are provided for dismantling certain portions of the machine for purposes of cleaning (Rec. 91).

One of the methods of testing paper is the disintegration method which, briefly, is cutting the paper board into sections and placing them into sterile dishes. The paper is kept as sterile as possible for the test and the cutting instruments are sterile. The sections are then placed in sterilized water. Without going into further detail, by this method the bacterial content of the paper board can be determined (Rec. 84).

Another method is the rinse test, which is the test used

on glass bottles. Sterile water is introduced into a container for the purpose of rinsing organisms from the walls of the container, and taking out by bacteriological means the rinse water and counting the bacteria (Rec. 103).

Dr. Sanborn, as a result of 350 tests on Cherry River paper board received since January 1, 1939, at the laboratory in Geneva, New York, in the early part of 1939, testified that the shipments, collected under bacteriological control and shipped to the converters, were essentially sterile (Rec. 69). He testified that out of 240 tests made over a period of two years from June 1937, 88% showed less than 100 colonies per gram of disintegrated paper board. He stated that through research, 500 colonies 2463 per gram has been suggested as a safe maximum (Rec. 70). The regulation suggested in the recent amendment by the United States Public Health Service is 100 colonies per gram (Defts. Ex. 29, p. 6, par. 5b).

Dr. Sanborn testified that in his experiments he had not found any pathogenic (disease-producing) bacteria in paper board (Rec. 95), and that the paper board when it leaves the Cherry River mill does not contain enough moisture for pathogenic or other bacteria to live on (Rec. 97), that is, to develop and multiply, but does contain enough to enable them to continue to exist (Rec. 222-3). He testified that upon storage in a factory or warehouse at a temperature of 70° F., under sanitary conditions, the bacterial count in paper board would decrease (Rec. 99).

Much of this testimony was corroborated by other experts.

Dr. Prucha, one of plaintiff's witnesses, a bacteriologist on the staff of the University of Illinois, testified that the paper board was self-purifying, in that as the moisture in the paper board evaporated both as it went over the hot rollers and afterwards, bacteria, which must have moisture to exist and multiply, would tend to disappear (Rec. 1074). He testified that on account of this self-purification and the heating and drying to which the paper was subjected, it was immaterial whether the water at the mill was contaminated or not; that as far as he was concerned it would make no difference whether the water used had been taken from the Sanitary District channel in Chicago (Rec. 1074). Later, however, he testified that such water should not be used, as it might have a public health significance (Rec. 1193). And he also gave testi-

mony that bacteria including the non-spore forming disease producers, might remain in the paper for some time after it had been manufactured (Rec. 1194-99).

Dr. Tracy, one of plaintiff's witnesses, also on the staff of the University of Illinois, testified among other things that he considered the Pure-Pak container a "sanitary" container but not a "sterile" container (Rec. 701).

Dr. Woodman, Chief of the Health Department of Evanston, plaintiff's witness, tested 100 of plaintiff's containers. While he found that as much as 7% of them contained more than the permitted maximum of 1000 colonies of bacteria per quart (Rec. 1002), he also found 12 with 500 to 1,000; 20 with 100 to 500; 29 with less than 100; and 33 sterile. Other plaintiff's witnesses testified that their tests showed results within the permitted maximum; that the bacteria found in paper board were spore-forming aerobic organisms (living on organic material), were not pathogenic (Rec. 517), and presented no health problem (Rec. 520, 542).

Dr. Tracy testified that the bacteria pick-up on paper container machines used for filling was no greater than that found on glass bottle machinery (Rec. 735), and that the sterilization process on glass bottles, like the paraffining on paper containers, was not perfect (Rec. 739). However, he also testified that in experiments with 162 glass bottles which had been washed in apparatus operated essentially as in the City of Chicago he found no more than 600 colonies per bottle as compared with 2464 the permitted maximum of 1000 per bottle. The only basis of comparison between glass bottles and paper containers is after glass bottles have been washed. Upon completion of manufacture and before use, glass bottles are absolutely sterile, while paper board is only "essentially" sterile (Sanborn Rec. 72).

On the other hand, defendants, dealing with the subject of paper containers as a class, rely on evidence emphasizing possible sources of contamination and health hazards on account of variations from ideal procedure which might be found in mills generally (e. g., Rec. 1725 et seq.; Sanborn, 125). Thus there was testimony to the effect that the condition of the physical equipment of the mill might present sources of contamination; the vats might be of rough surface cement as opposed to tile, so as to give opportunity for the adhesion of a substantial amount of pulp which would furnish a breeding spot for bacteria;

the pipes might be of iron instead of copper, which might have a somewhat similar effect; the artificial blower or drying system might not be adequate, so that there might be contamination from the air, dependent upon the direction of the wind and upon atmospheric conditions; the water used on the driers might not be sterile; if a mill making containers for milk also made other types of containers in which inferior pulp was being used, there might be a residue of the inferior material which might mix with the pulp used for milk containers. It was also suggested that paper in transit might not be adequately protected from dirt or from moisture.

I find that the evidence is such that a legislative body might reasonably conclude that at one or more of the many steps and stages from the pulp to the sealed container, contamination might occur through carelessness, desire to save expense, inadequate facilities, or other reason.

Absorbency of paper containers:

The possibility of bacteria getting into the paper board has no significance unless such contamination can get into the milk in the finished container. I find that despite the paraffining, the finished paper containers are absorbent (Dr. Prucha, Defts. Ex. 28; Rec. 1234; Dr. Tracy, Rec. 728; U. S. Public Health Service statement, Ptf. Ex. 61, p. 3, and that such bacteria as may be contained in the walls of the paper containers may thus get into and spread through the milk. Experiment 1, Defts. Ex. 28).

I find that there is evidence tending to show that the walls of the finished container may contain bacteria. Plaintiff's witness Dr. Sanborn testified on direct examination (Rec. 116-18) that the sanitary condition of the paper board blank determines the sanitary condition of the finished container; that paper with high bacterial counts will result in finished containers with high bacterial counts; that it is essential that the paper board have a low bacterial count. The paraffining is not an effective sterilizing agent.

Dr. Tracy, another of plaintiff's witnesses, testified that the condition of the mill is a significant factor in the condition of the finished paper container; that the sanitary condition of the water used in the paper mill bears
2465 a relation to the sanitary condition of the finished container; that dirty contaminated paper board must

never be used, because bacteriological tests on such board, even after the board has been well paraffined, are not satisfactory; that tests made of the water at two paper mills engaged in making paper for milk containers showed the presence of sewage or intestinal bacteria (Rec. 706-9). One of these was the unchlorinated water at the mill at which the paper for plaintiff's containers is manufactured, but the chlorinated water used by that mill was free of bacteria (Rec. 708).

With the best method of sterilization, it is possible to obtain a sterile glass bottle. On the other hand, I find that on the basis of the above evidence, a legislative body might reasonably be of the opinion that there is some danger that the walls of the finished paper container may contain bacteria, and that, by reason of the absorbency of the container walls, even when paraffined, the bacteria may get into the milk. The amount of absorbency is unimportant, the weight to be given for the determination of the legislative body (*City of Chicago v. Arbuckle Bros.*, 344 Ill. 597, 604-5).

Paraffin particles in the milk:

I find that there is a sloughing off of particles of paraffin into the milk (U. S. Public Health Service statement, Ptf's. Ex. 61, p. 3, quoted ante p. 3; Ptf's. witness Dr. Tracy, Rec. 727, 716-17; Def'ts. witness Martinek (1612-13). Dr. Black, a pediatrician, testified that he preferred to have milk for children not adulterated with paraffin; that in the handling of babies even the appearance of evil is to be avoided. On this subject plaintiff introduced evidence to show that paraffin was not harmful, and that the particles were so small as to be unimportant. The question here is not what the court may think regarding the harmfulness of such foreign substance in the milk. I find that the legislative body entrusted with the "imperative duty" (*Koy v. City of Chicago*, 263 Ill. 122, 130-1) of seeing to the purity of milk might, in view of this evidence, not unreasonably refuse to permit such foreign substances in milk, especially in milk for babies (by statute in Illinois the addition of "any" foreign substance to milk is forbidden: Ill. Stats. Ch. 38, par. 14).

Odors from paraffin or bacteria:

The city contends that paraffin oxidizes at high temperatures, with the result that an odor is imparted to the

paper containers and the milk therein. The City refers to the testimony of plaintiff's witness Keyser that oxidation of paraffin begins at a relatively low temperature and that the nature of the products of oxidation is acid (Deposition 27-8). Dr. Sanborn, another plaintiff's witness, when asked whether the container had been paraffined (Rec. 299-300), smelled it. He explained that paraffin may sometimes be heated too hot and that in such case certain products of decomposition may be detected. In that connection he mentioned that if the paraffin in the paraffin bath is not renewed and kept fresh, overheating is likely to occur at a lower temperature than with fresh paraffin; that if the paraffin in the bath is permitted to remain for two or three weeks without change and cleaning the tank, the paraffin may take on an off color and an odor (Rec. 318-20).

2466 The City makes the point that milk absorbs odors and if paraffin is allowed to get into such state the purity of the milk may be affected. It also makes the point that if paper board contains a high count of bacteria, such bacteria may not only be disease-producing but may give off very objectionable odors which may be absorbed by the milk (testimony of Dr. Rice, Rec. 527-32).

On the other hand, plaintiff contends that pure clean paraffin is harmless; that in fact plaintiff's container does not have such odors. It refers to the testimony of Howard R. Peterson (Rec. 1489-93) to the effect that paraffin oxidizes at 210° F., and even then only after twenty-four hours; that the fresh paraffin used has a sweet odor, free from any trace of rancidity; and that a paraffined-milk container left in the sun will not permit of oxidation unless it be left there for many hundreds of hours. Plaintiff contends that the paraffin used in the Ex-Cell-O machine at plaintiff's plant is changed daily; that there is no public hazard if the sweet odor gets into the milk, and that there is no testimony that the oxidation of paraffin has any harmful effect.

Here again we have a conflict of views. I find that the City Council in prohibiting paper containers might conceivably have taken into consideration, along with other items, possible staleness of the paraffin, oxidation of the paraffin, and the possibility of rancid odors from oxidized paraffin being imparted to the milk. Since the duty of the City is not only to protect against disease-producing milk but also to insure pure unadulterated milk, I find that the City Coun-

oil may also have taken into consideration even the so-called sweet odors of pure paraffin and have decided that milk should not have a foreign odor, whether rancid or sweet and whether harmful or not. I also find that the City Council, in its effort to insure purity of milk, may likewise have been influenced to some extent by the possibility of objectionable odors from large counts of bacteria in the paper getting into the milk.

Effective Sanitary Control of Paper Containers:

As is apparent from the description of the various steps in the manufacture, transportation, processing and filling of paper containers, the sanitary condition of various paper mills may vary from time to time as either natural conditions change or the required precautions are not maintained. Economic considerations may influence relaxation in such precautions. (Rec. 191-206).

Dr. Sanborn, plaintiff's witness, testified that, without knowledge and control of the sanitary conditions at the mill, rinse tests might be misleading (Rec. 232) and even disintegration tests alone might not always be relied upon (Rec. 188-9, 214), and that in the interest of public health, standards governing the production, processing and handling of paper board until filling of the container, should be adopted by public health authorities (Rec. 210-11).

In an address by Dr. Prucha in October, 1937, to milk sanitarians, he emphasized that they should inspect paper mills and check on the pulp and the water because some mills might not have proper control over contamination in water supply; that medical examination of the workers handling and packing the paper should be required; and that 2467 the plant where the paper is cut and printed should be inspected and visited (Ptf's. Ex. 62, pp. 1, 2).

Dr. Sanborn also testified (Rec. 224-5) that a consistently high standard of quality of paper depended largely upon constant voluntary adherence by the mills themselves to an adequate micro-biological control; that that would be the only means of control, unless laboratory tests by qualified bacteriologists within municipalities were made sufficiently comprehensive and complete so that the test of the finished product received in a municipality might be considered an index to the sanitary condition of manufacture; that the foregoing had occurred to him as of January, 1938, but that such a procedure depended upon the development of meth-

ods, and it might be some time before such a procedure could be worked out to be called an effective means (Rec. 225-6).

Plaintiff points to the testimony of various expert witnesses that the disintegration test is severe and satisfactory (Rec. 2502, 1265-6, 1292); that physical and chemical tests on paper containers at the dairy are adequate to indicate their sanitary condition. With reference to the evidence of Drs. Sanborn and Prucha concerning the advisability of inspection at mills and converting plants, plaintiff argues that they were investigators who were seeking detailed information on the subject; that one becoming an outstanding expert in this field would naturally start at the beginning, but that health officers in various municipalities which are using the single service containers have not felt it necessary to go to the mills or converting plants because they have adequate control after the containers arrive in the municipality, the same as they have over glass bottles, milk, or food products and food containers generally which are brought into their jurisdictions. (This latter point may be disposed of by the suggestion—also made in another connection in this report—that a legislative body may hit at one abuse which it has found, even though it has failed to strike at another (*United States v. Carolene Products Co.*, 304 U. S. 144, 151)).

Plaintiff further argues that the recent amendment to the model code of the United States Public Health Service (Sec. 10, Ptf. Ex. 92; Defts. Ex. 29) does not require inspection and control at the mill, and that the resolution of the Board of Health of the City of Chicago of October 16, 1939, recommending an amendment to the Chicago ordinance, did not insert a condition requiring inspection at the mill. Plaintiff argues that the disintegration test furnishes and has been found to furnish adequate control without necessitating inspection at the mills, and that the sanitary qualities of its containers are as good as, if not better than, the washed glass bottle containers.

The City takes issue with the plaintiff as to what the United States Public Health Service now requires by quoting the following from the amendment to the model ordinance, Item 10p thereof:

"Single-service containers, etc., which have not been manufactured and handled in a sanitary manner may contaminate the milk.

"Satisfactory Compliance.—This Item shall be deemed to have been satisfied if—

2468 "(5) The manufacture, packing, transportation, and handling of single-service containers and container caps and covers are conducted in accordance with the following requirements. Inspections required herein may be made by the health officer or by any agency authorized by him."

The City also argues that it is possible effectively to sterilize a glass milk bottle at the dairy (Rec. 75, Dr. Sanborn), while a paper container requires constant inspection of manufacture and processing at remote places.

This discussion brings us back to the holdings that a legislative body in exercising the police power may decide to prohibit entirely or to regulate, and that the power is not to be denied simply because some innocent articles or transactions may be found within the proscribed class. It also emphasizes the evidence of plaintiff's own experts that conditions at the mill are important and significant, and that therefore adequate control requires not only inspection of the finished product, but also inspection and control of the preceding steps in the manufacture and converting, as a preventive. If this evidence conceivably furnishes a rational basis for legislative judgment that paper containers do possess hazards and deficiencies, it is immaterial that the court on all of the evidence may entertain a different judgment.

The record shows some paper containers, not plaintiff's, with high bacterial counts. In tests on 23 samples, 3 had less than 1000 colonies per container, 5 had 1000 per container, and 13 had above 1000 and up to 26,000, with very objectionable odors from the bacterial colonies (Rec. 527-32). There are a number of companies which manufacture paper containers, under varying conditions. Some of them, possibly many of them, may not observe the ideal precautions. Even plaintiff's container may not always be manufactured with the maximum of safeguards!

It is not a question whether a particular manufacturer or group of manufacturers may observe safeguards. Here we have a case where the legislative body may perhaps out of caution, but upon evidence in the record, have decided that the choice should be against the use of paper containers. And it may have decided that even if paper con-

tainers may serve the purpose of health regulations well, glass bottles serve it better, thus giving us the situation presented by the case of *Pacific States Box & Basket Co. v. White*, 296 U. S. 176, hereinafter mentioned; or it may have decided that the cost of inspection and control of paper containers was prohibitive (cf. *Block v. City of Chicago*, 239 Ill. 251, 261).

Non-transparency of paper containers:

Non-rising of cream to top:

As further reasons for the prohibition against paper containers, the City cites the fact that paper containers are not transparent and that the cream does not rise to the top in them. It argues that there is a sanitary advantage in a transparent milk container, and that in the glass milk bottle the cream line is visible and the consumer has an opportunity to judge as to the quality of the milk, and, it might be added, as to whether dirt or any other visible foreign body is in the milk; while in the paper container the butter fat content can be determined only by special tests (Rec. 688-9) and the milk is for some reason so affected that the cream does not rise to the top as in glass bottles.

The City cites the case of *Pacific States Box & Basket Co. v. White*, 296 U. S. 176, in which the Supreme Court upheld an Oregon regulation prescribing hallowlocks as standard containers for fruits and vegetables. The regulation prescribed not only the capacity, but also the dimensions and form of the containers. Plaintiff had for years sold its containers in Oregon, and because of the expense involved could not change to the new form. The opinion of the Supreme Court says that to fix both the dimension and form "may be" deemed necessary in order to assure observance of the prescribed capacity and to effect other purposes of the regulation; that it "may be" that in Oregon buyers at retail are "less likely" to be deceived as to the "condition and quality" of the berries if sold in the prescribed containers; that the character of the container "may be" an important factor in prescribing the condition of the berries; that a shallow container like the hallowlock "may conceivably" better preserve the fruits; that a container with perpendicular side "may conceivably" preserve them better than a metal-rim cup with outward sloping sides. The opinion mentions other possible advan-

tages, and says that there may be a reasonable difference of opinion as to the type best adapted to the "protection" of the public.

Plaintiff contends that Section 3094 of the Chicago ordinance here involved is not designed in any respect to prevent fraud in selling milk with too little butter fat, and is not an ordinance on weights and measures; that it is purely a health regulation; that if the consumer does not desire to buy milk because he cannot see the cream line, that is his privilege; that if the cream does not localize at the top and the consumer wants to pour off the cream, he may buy his milk in a glass container; that granting that privilege does not require or authorize depriving plaintiff of the right to sell milk in paper, or depriving other customers of the right to buy their milk in paper; that where the cream concentrates is meaningless from a public health standpoint, as long as it is present in the required amount; that there is nothing in the ordinance regarding transparency of milk containers or directions as to where the cream must localize.

The case of *Koy v. City of Chicago*, 263 Ill. 122, 130-1, holds that the "imperative duty" of the municipality includes not only regulation of the sale of milk but also the manner in which purity, wholesomeness and freedom from disease shall be secured "and made to appear"; that to that end the milk containers may be required to be "of prescribed character and capacity;" and that the object of all such restrictions is the preservation of the public health "and as a means to that end the protection of the general public against dishonest vendors of milk."

It may well be a legislative matter whether milk shall be sold in standard transparent glass milk bottles rather than in paper containers in order to protect the public health and to guarantee that milk sold contains the usual amount of cream. As said by the Supreme Court of the 2470 United States in *Pacific States Box & Basket Co. v. White*, 296 U. S. 176, *supra*: "Whether it was necessary in Oregon to provide a standard container for raspberries and strawberries, and, if so, whether that adopted should have been made mandatory, involved questions of fact and of policy, the determination of which rests in the legislative branch of the State government. * * * We may inquire only whether it is arbitrary or capricious."

Discriminatory enforcement:

Plaintiff on the basis of *Yick Wo v. Hopkins*, 118 U. S. 356, argues that the ordinance is invalid because of alleged discriminatory enforcement. The point is that despite the resolution of the Board of Health passed November 12, 1935, providing that milk shall be dispensed in hotel and restaurants only in original containers, no steps have been taken to enforce the resolution, and that therefore the Board has, at least by acquiescence, approved paper containers as sanitary dispensers within the proviso. Plaintiff relies upon evidence of several such purchases from drug stores in Chicago, and also upon an agreement (Stipulation, see Ptf's. brief p. 15) that ice cream, butter, lard, cheese, oysters, pickles, soft drinks, and liquid coffee are sold at retail daily in Chicago in paraffined cartons made of virgin spruce pulp.

I find that the evidence in this record does not furnish a basis for application of the *Yick Wo* case. There the evidence indicated that the ordinance concerning laundries was in fact directed against Chinese; that while the ordinance in terms applied to all laundries in wooden buildings, it was being given widespread enforcement only against Chinese. There is no such evidence here. The most that can be said is that the City has either not been able to watch every drug store and restaurant, or has not been as vigilant as possible in enforcing the Board's resolution concerning sales of milk in such places. That, however, does not in my opinion affect the validity of the ordinance.

The fact that foods other than milk are sold in containers to which objection may possibly be made does not invalidate the ordinance regarding milk. Aside from the answer that such other foods may be sufficiently different as to fall within a different class from milk, a still further answer is that a legislative body "may hit at an abuse which it has found, even though it has failed to strike at another" (*United States v. Carolene Products Co.*, 304 U. S. 150, 151; see also *Block v. City of Chicago*, 239 Ill. 251, 259-60).

Certain Contentions of Plaintiff Which Have Not Been Herein Specifically Mentioned:

Even if it may be considered that a number of other municipalities permit paper containers, it may also be considered that there are a much larger number of mu-

municipalities throughout the country which have not permitted paper containers. The fact that police regulations of a certain kind are in effect in one part of the country does not prove that contrary police regulations in effect in other parts of the country are unreasonable.

The fact that disease or death has not been traced to paper containers presents merely a matter of emphasis and degree, proper for consideration in the formation of legislative judgment. The power to regulate the sale of milk includes the power not only to protect it against disease, but also against impurity. It also includes the power to provide that milk shall meet certain standards of quality. It includes power over the milk receptacles as a means of protecting not only against disease but also against impurity and lack of required quality. Courts in reviewing legislative judgment are concerned only with the question whether there exists evidence furnishing a rational basis for a conclusion that there is possibility or potentiality of a result against which the enactment is directed (*Standard Oil Co. v. City of Marysville*, 279 U. S. 582, 586).

Plaintiff refers to Section 15 of the 1939 Illinois Act concerning pasteurized milk and milk products (Ill. Rev. Stats. 1939, Ch. 56½, par. 129), and to the regulation of the State Department of Public Health thereunder, which recognize single service containers. However, Section 19 of that Act preserves the pre-existing home rule of municipalities on that subject. The existence of this statute may be very persuasive to the legislative bodies of municipalities, but where there may be reasonable ground for a conclusion either way, courts cannot substitute their judgment for that of the legislative body.

The same may be said of the action of the United States Public Health Service in the fall of 1939 in amending its model ordinance by adding single service containers (Ptf. Ex. 92; Def. Ex. 29; Rec. 1567). In this connection it is to be observed that as late as June, 1939, in the report adding paper containers to standard milk bottles in its model ordinance, the United States Public Health Service Sanitation Advisory Board included a criticism of paper containers (Ptf. Ex. 61, p. 3; and see quotation *ante* p. 3).

The United States Public Health Service is merely advisory to municipalities. After that body in October, 1939, added single service containers, the Board of Health of

the City of Chicago in the same month passed a resolution recommending to the City Council that it amend the ordinance so as to permit the use of single service containers in addition to standard milk bottles. The City Council has not yet acted on that recommendation. The resolution of the Board will no doubt be given due weight by the City Council. The validity of the action of the City Council, wise or unwise, will depend only upon whether its decision has a reasonable basis. At the present time the ordinance of the City prohibits the use of single service containers. The resolution of the Board of Health does not establish that there is no basis for the prohibition; it merely is evidence that possibly a contrary policy should be adopted.

Plaintiff relies on *People v. Carolene Products Co.*, 345 Ill. 166, 168, to the effect that the legislature may not arbitrarily interfere with private business, and holding invalid a prohibition of carolene. In that case, however, the wholesomeness of carolene was admitted. In *United States v. Carolene Products Co.*, 304 U. S. 145, involving a federal prohibition of the same product, where wholesomeness was not admitted and the court considered the evidence (pp. 148-9), the prohibition was sustained. In

the case at bar, not only does the city contend that 2472 paper containers are not sanitary, but evidence is relied upon to sustain the contention. The only question here is whether that evidence affords the necessary basis.

Pendency Before City Council, Summary and Recommendations:

The application is for an injunction and for a declaratory judgment. The issuance of an injunction is not a matter of absolute right but rests in the sound discretion of the court (*Petroleum Exploration, Inc. v. Public Service Commission*, 304 U. S. 209, 218). The issuance of a declaratory judgment also rests in the sound discretion of the court (*American Automobile Ins. Co. v. Freundt*, 103 F. (2d) 613, 619 (CCA 7). Since one of the objects necessarily implied in this proceeding is an amendment to the milk ordinance, it is noted that the issuance of a mandatory injunction or mandamus also rests in the sound discretion of the court (*Morrison, et al. v. Work, et al.*, 266 U. S. 481, 490).

Both parties agree that, if the phrase "standard milk

bottles" does not include paper containers, the ordinance prohibits their use. However, in view of the fact that paper containers are of comparatively recent development, it would be more accurate to say that the ordinance does not yet permit them. Innovations, whether in health or other matters, have to stand the test of time and experience before they are adopted. We have a situation where the matter is actually before the City Council and the court is called upon to decide with reference to the same thing. According to the record, health measures first pass through the United States Public Health Service. If that body recommends their adoption, municipalities may or may not follow the lead. Here the United States Public Health Service has only recently taken its action and the Board of Health of the City of Chicago has promptly recommended to the City Council that it amend the ordinance. This matter, therefore, seems to be taking the regular course.

There is, in my opinion, strong basis for a finding that plaintiff has proved by a preponderance of the evidence that its containers are meritorious and should be permitted to be used. However, as already pointed out, in order that plaintiff may prevail, it must prove its case beyond a reasonable doubt; in other words, the question is whether there is enough evidence, even less than a preponderance, to establish a rational basis for the legislative decision. If there is such basis, it is immaterial that the court may have a different opinion as to the wisdom of such decision. And if there is such basis, the constitutional objections must be overruled.

The presumption is that the legislative judgment is valid. I find that there is evidence in the record, from plaintiff's own witnesses, independent of the corroborative testimony of Dr. Arnold, the City's witness, from which the City Council could reasonably have concluded that prohibition of paper containers was necessary and appropriate to protect the purity and wholesomeness of milk, or, to state the proposition another way, it is at least doubtful whether plaintiff has proved that there is not sufficient evidence tending to establish a reasonable basis for such conclusion.

2473 I find that the legislative body may reasonably have based its decision on evidence tending to prove the following:

There are steps in the manufacture, conversion and fil-

ling of paper containers in which bacteria may get into the walls of the containers.

Paper containers, even when paraffined, are to some extent absorbent and the milk may absorb such bacteria.

Sanitary conditions differ from one paper mill to another and even in the same mill from time to time.

The sanitary condition of the mill is a significant factor as to the condition of the finished container.

The sanitary condition of the paper board blank determines the sanitary condition of the finished container.

Particles of paraffin get into the milk and constitute a foreign substance which preferably should not be in milk, especially for babies.

Odors from paraffin, whether the paraffin is fresh or not, may get into the milk.

If the paper board contains a high amount of bacteria, they may exude objectionable odors which may get into the milk.

The control and precautions by paper manufacturers themselves may not be adequate.

In the case of glass bottles, the City has the cleaning process at hand locally and can exercise complete control; in the case of paper containers, inspection at remote places may be necessary, but impractical or too expensive.

Some paper containers have been shown to contain high bacterial counts.

Paper containers are not transparent as glass bottles, so that it is difficult to observe the quality of the milk or whether the milk contains dirt or other foreign body.

Cream does not rise to the top in paper containers, so that purchasers may not readily know whether they are getting milk of the required fat content.

The United States Public Health Service Sanitation Board in June 1939 criticized paper containers on account of their absorbency and the sloughing off of paraffin.

A reasonable basis for the legislative judgment being present, I conclude that the court must hold the ordinance valid and the prohibition of paper containers reasonable.

The findings and conclusions hereinbefore set forth may be considered as the declarations recommended in answer to the request for a declaratory judgment in this case. I shall not repeat every finding, but among them are included the following:

A paper container is not a standard milk bottle within the meaning of Section 3094 of the Revised Chicago Code.

The ordinance is not invalid as indefinite, as a delegation of legislative power, as unreasonable, as a deprivation of property without due process, or on account of discriminatory enforcement.

The acts of the defendants in denying plaintiff the use of its paper containers in the City of Chicago are in pursuance of the ordinance, and the ordinance, in view of the facts and the applicable rules of law, must be held a valid and reasonable exercise of the police power.

Upon the facts in this record, including the actual pendency of the whole matter before the City Council, I conclude and recommend that the court in the exercise of its sound judicial discretion, and with due regard for comity, public convenience, and the decisions regarding encroachment by the judicial department upon the domain of the legislative department, should not issue the injunction or render the declaratory judgment requested.

Dated at Chicago, Illinois, this 27th day of April, 1940.

Respectfully submitted,

Jacob I. Grossman,

Master in Chancery.

2814 And on, to-wit, the 7th day of May, A. D. 1940, ^{Filed May 7, 1940.} came the Plaintiff by its attorneys and filed in the Clerk's office of said Court its certain Notice and Objections to Final and Modified Report of Master in Chancery Jacob I. Grossman, in words and figures following, to-wit:

2815 IN THE DISTRICT COURT OF THE UNITED STATES.

• • • (Caption—316) • •

NOTICE.

To:

Barnet Hodes,
Corporation Counsel,
#1300—139 N. Clark Street.
Walter V. Schaefer,
First Assistant Corporation Counsel,
#1300—139 N. Clark Street.
Charles P. Horan,
Assistant Corporation Counsel,
#1300—139 N. Clark Street.
Chicago, Illinois.

You are herewith served with a true copy of plaintiff's Objections to the Final and Modified Report of Master in Chancery Jacob I. Grossman; and said Objections attached are being filed by plaintiff pursuant to the Rules of Court for hearing and disposition by the trial court, before whom said cause is now pending.

Gariepy & Gariepy,
V. P. Frank & F. A. Gariepy,
Attorneys for Plaintiff.

Received a copy of this notice and the above described objections this 7th day of May, 1940.

Barnet Hodes,
Walter V. Schaefer,
Charles P. Horan.

Filed
May 7,
1940. 2816

In the

DISTRICT COURT OF THE UNITED STATES.

• • (Caption—316) • •

OBJECTIONS TO MASTER'S REPORT.

Now comes the plaintiff, Fieldcrest Dairies (Inc.), and files and states its objections to the Amended and Modified Report of Jacob I. Grossman, Master in Chancery, dated April 15th, 1940, and filed April 27th, 1940, as follows:

(1) The Master erroneously stated (Page 5 of the Master's Report) that "the issues are whether plaintiff's paper container is a 'standard milk bottle' within the meaning of the Chicago Milk Ordinance, and, if not, whether the ordinance is invalid. Both parties take the position that if the paper container is not a standard milk bottle, the ordinance prohibits the use of paper containers."

Whereas, the Master should have stated the issues as follows: "Does the clause 'standard milk bottle' exclude the use of plaintiff's container? Does the failure of the ordinance to define 'standard milk bottle' render the ordinance invalid? Is the ordinance unreasonable? Has the ordinance been unreasonably administered by the Board of Health?"

(2) The Master erroneously found (Page 6 of the Master's Report) that "glass milk bottles have constituted a distinct and definite class of bottles;" whereas 2817 the Master should have found and fails to find as established by the evidence that "glass milk bottles have constituted a distinct and definite class of glass bottles."

(3) The Master erroneously found (Page 6 of the Master's Report) that Dr. Tracy, plaintiff's witness, testified that if he were selling milk at retail in Chicago, the term "standard milk bottle" would mean to him a glass milk bottle of a certain size and shape (Record Pages 481-4. Whereas, the Master should have found and fails to find as established by the evidence (Record Page 681) that Dr. Tracy testified as follows: "There is a standard glass milk bottle but there is no standard milk bottle that I know of."

(4) The Master erroneously found (Page 6 of the Master's Report) that "a person of average intelligence would experience no difficulty in selecting a milk bottle from an array of other bottles." Whereas, the Master should have found and fails to find as established by the evidence, that milk bottles in use in the United States differ as to materials, shape, size and weight, and that, therefore, there is no such thing as a "standard milk bottle."

(5) The Master erroneously found (Page 6 of the Master's Report) that "to classify plaintiff's paper container as a 'bottle' would require considerable straining of the definitions of a bottle." Whereas, the Master should have found and fails to find as established by the evidence that a bottle is defined as a 'vessel designed to hold liquids constructed of various materials and in various forms' or 'a hollow mouthed vessel of glass, wood, 2818 leather or other material for holding and carrying liquid, and that plaintiff's paper container clearly comes within the definition of a bottle.'

(6) The Master erroneously found (Page 7 of the Master's Report) that "the general understanding of standard milk bottle has always been that they are of the familiar shape and are made of glass." Whereas, the Master should have found and fails to find as established by the evidence "that there is no such bottle as a 'standard milk bottle,' and that milk bottles of various shapes, sizes and materials are used throughout the United States."

(7) The Master erroneously found (Page 8 of the Master's Report) that "the standard milk bottle specified in the ordinance is a glass bottle of the type, shape and proportion well known to the trade and community in Chicago as having been used for many years for the delivery of milk at retail and that plaintiff's container is not a standard milk bottle within the meaning of the ordinance." Whereas, the Master should have found and fails to find as established by the evidence that the ordinance does not define a 'standard milk bottle,' that the term 'standard milk bottle' is not self-definitive; that the term 'bottle' is now so loosely used that its limit of application is not well defined; and that plaintiff's paper container is a standard milk bottle within the meaning of the ordinance.

(8) The Master erroneously found (Page 9 of the Master's Report) that "the phrase 'standard milk bottle'

is self-definitive." Whereas, the Master should have found and fails to find that the term 'standard milk bottle' is not defined by the ordinance, and the definition thereof must be supplied by the officer who executes the ordinance, which is an unwarranted delegation of legislative authority to an executive officer, which renders this provision of the ordinance invalid."

(9) The Master erroneously found that (Page 12 of the Master's Report) "the proviso permitting hotels, soda fountains, restaurants and similar establishments to dispense milk from sanitary dispensers approved by the Board of Health does not give the Board of Health legislative power and is therefore valid." Whereas, the Master should have found and fails to find "that the proviso creates an unreasonable basis for classification, is a delegation of legislative authority without rules to guide the action of the Board of Health; and that inasmuch as the Court cannot say that the City Council would have passed the ordinance unaccompanied by this invalid proviso, the entire act is invalid."

(10) The Master erroneously found that (Page 15 of the Master's Report) "legislation must be sustained, even if the rational ground therefor is established by less than a preponderance of the evidence, and even if the Court from a preponderance of the evidence may reach an opposite judgment." Whereas, the Master should have found and fails to find that "some rational ground for the enactment of legislation should be established at least by a preponderance of the evidence, and that the Court cannot find that some rational ground exists for the passage of the ordinance unless such ground is proven by such a preponderance."

(11) The Master erroneously found that (Page 25 of the Master's Report) "the evidence is such that a legislative body might reasonably conclude that at one or more of the many steps and stages from the pulp to the sealed container, contamination might occur through carelessness, desire to save expense, inadequate facilities, or other reason." Whereas, the Master should have found and fails to find as established by the evidence that "the evidence is such that a legislative body could not reasonably conclude that at any of the steps and stages from the pulp to the sealed container, contamination might occur in any manner whatsoever, that the plaintiff has proved by a clear

preponderance of the evidence that no contamination can occur in the plaintiff's container from the many steps and stages in its manufacture from the pulp to the finished, filled and sealed container, and that plaintiff's container is sanitary, sterilized and not in violation of the provisions of the Ordinance or the rules and regulations of the Board of Health."

(12) The Master erroneously found (Page 26 of the Master's Report) that "the finished paper containers are absorbent; and that the walls of the finished container may contain bacteria; that paraffining is not an effective sterilizing agent." Whereas, the Master should have found and fails to find as established by the evidence that "the slight amount of absorption present in the paper container presents no health hazard."

(13) The Master erroneously found (Page 27 of the Master's Report) that "a legislative body might reasonably be of the opinion that there is some danger that the walls of the finished paper container may contain bacteria, and that, by reason of the absorbency of the container walls, even when paraffined, the bacteria may get into the milk."

Whereas, the Master should have found and fails to find as established by the uncontradicted evidence in the record that there are no injurious bacteria in the paper board and that the slight absorption existing in the paper container creates no health hazard. That no legislative body could reasonably be of the opinion that any health hazard exists by reason of absorption of milk by plaintiff's container.

(14) The Master erroneously found (Page 28 of the Master's Report) that "the Legislature might not unreasonably refuse to permit the use of paper containers because there is a sloughing off of particles of paraffin into the milk." Whereas, the Master should have found and fails to find as established by the uncontradicted evidence in the record that paraffin particles so sloughed off are so small as to be unimportant, that paraffin is not harmful and that any action of a legislative body in refusing to permit the use of a paper carton because of the possibility of the sloughing off of minute particles of paraffin is unreasonable.

(15) The Master erroneously found (Pages 30 and 31 of the Master's Report) that "the City Council in prohibiting paper containers might conceivably have taken into

consideration possible staleness of the paraffin, oxidation of the paraffin, the possibility of rancid odors from oxidized paraffin being imparted to the milk, and the possibility of objectionable odors in large counts of bacteria in the paper getting into the milk." Whereas, the Master should have but failed to find as established by the uncontradicted evidence in the record, that the paraffin used in plaintiff's cartons is clean, pure, harmless, contains no odors, is 2822 not heated to such a degree as to oxidize, is changed daily at plaintiff's plant and there is no health hazard in the use of paraffin in plaintiff's containers. That there is no evidence in the record of large counts of bacteria in plaintiff's container and that therefore no objectionable odors could get into the milk from bacteria. That the City Council would have been unreasonable in excluding plaintiff's container because of the possibility of staleness of paraffin, oxidation and rancid odors where no such possibility exists as to plaintiff's container.

(16) The Master erroneously found (Pages 35 and 36 of the Master's Report) that "the City Council may have reasonably determined that even if paper containers may serve the purpose of health regulations well, glass bottles serve it better, and that the cost of inspection and control of paper containers was prohibitive." Whereas, the Master should have found but failed to find as established by the evidence that the paper carton serves the purpose of health regulations better than the glass container, and that it is unnecessary to inspect and control at the mill, inasmuch as the tests on paper containers at the dairy are severe, satisfactory and adequate to determine their sanitary condition. That to exclude paper containers because of the unwarranted suggestion that control should be had at the mill would constitute an unreasonable assumption by the City Council.

(17) The Master erroneously finds (Page 36 of the Master's Report) that "inasmuch as the record indicates that some paper containers (not plaintiff's) have high bacterial counts, some companies might not observe the ideal precautions (taken by the manufacturers of plaintiff's container) and that plaintiff's container might 2823 not always be manufactured with the maximum of safeguards." Whereas, the Master should have found but fails to find that conditions as to other containers should have no bearing on a finding that plaintiff's carton is sterile,

sanitary and presents no health hazards; and that it should be presumed that the condition of sanitation and sterility of plaintiff's container will continue to exist.

(18) The Master erroneously finds (Pages 37 to 40 of the Master's Report) that "it may well be a legislative matter whether milk shall be sold in transparent containers so that the public might be able to determine the quality of the milk sold, and whether any visible foreign body is in the milk; also that cream does not rise to the top in single service containers." Whereas, the Master fails to find and should have found that the ordinance does not specifically provide that milk shall be sold only in transparent containers nor does it provide that there should be a "cream line." That the ordinance by its other provisions adequately protects the public against fraud by adulteration and low butter-fat content.

(19) The Master erroneously found (Pages 41 and 42 of the Master's Report) that "the sale by drugstores of milk in paper containers, and also the sale of ice cream, butter, lard, cheese, oysters, pickles, soft drinks and liquid coffee at retail in paper containers in the City of Chicago is not discriminatory." Whereas, the Master should have found but fails to find that the ordinance has been discriminately enforced against paper cartons for the delivery of milk.

2824 (20) The Master erroneously found (Page 43 of the Master's Report) that "evidence of the permitted use of single service containers in a large number of communities without a single health hazard is immaterial and unworthy of consideration."

(21) The Master erroneously found (Page 44 of the Master's Report) that "the action of the State Legislature in permitting the use of single service containers is merely persuasive to the City Council." Whereas, the Master should have found but fails to find that the provision of the State Statute determines the public policy of the State and all its subordinate bodies, and that although the City under the "home rule provision" of the Statute can regulate the use of paper containers it cannot prohibit their use.

(22) The Master erroneously found (Page 45 of the Master's Report) that "at the present time the ordinance of the City prohibits the use of single service containers." Whereas, the Master should have found but fails to find that there is no prohibition in the ordinance against the use of single service containers.

(23) The Master erroneously found (Page 46 of the Master's Report) that "not only does the City contend that paper containers are not sanitary, but evidence is relied upon to sustain the contention." Whereas, the Master should have found but fails to find that "the Board of Health, by recommending to the City Council the passage of an ordinance permitting the use of single service containers, has admitted that the paper containers are sanitary."

(24) The Master erroneously found (Page 48 of the Master's Report) that "the plaintiff must prove its 2825 case beyond a reasonable doubt.

(25) The Master erroneously found (Page 49 of the Master's Report) that "It is at least doubtful whether plaintiff has proved that there is not sufficient evidence tending to establish a reasonable basis for the conclusion of the City Council to prohibit the paper container." Whereas, the Master should have found but fails to find that the defendant should have proved but has failed to prove that there is sufficient evidence tending to establish a reasonable basis for the conclusion of the City Council to prohibit the paper container.

(26) The Master erroneously found (Pages 49 and 50 of the Master's Report) that "the legislative body might reasonably have based its decision to exclude single service containers on evidence tending to prove certain alleged facts (therein set forth)." Whereas, the Master should have found but fails to find that the reasons set forth are not existent in the case of plaintiff's containers, are more guesses not based on any proof, are possibilities and not probabilities, and do not form any reasonable basis for the exclusion by the City Council of plaintiff's containers.

(27) The Master erroneously found that there is reasonable basis for the legislative judgment. Whereas, the Master should have found but fails to find that the City Council has failed to exercise its legislative judgment.

(28) Plaintiff objects to the following conclusions of the Master:

(a) That the ordinance is valid.

(b) That the prohibition of paper containers is reasonable.

2826 (c) That a paper container is not a standard milk bottle within the meaning of the ordinance.

(d) That the ordinance is not invalid, as indefinite, as

a delegation of legislative power, as unreasonable, as a deprivation of property without due process, and on account of discriminating enforcement.

(e) That the acts of the defendants in denying plaintiff the use of its paper containers in the City of Chicago are in pursuance of the ordinance, and the ordinance is a valid and reasonable exercise of the police power.

(f) That the Court should not issue the injunction or render the declaratory judgment requested.

(29) That the Master should have found but has failed to find as established by evidence, the following:

(a) That plaintiff's plant and pasteurization equipment, methods and conditions have been approved by the State Board of Health for sale of milk in its single service containers.

(b) That plaintiff has a permit from the Board of Health to sell its unpasteurized milk in the City of Chicago at wholesale.

(c) That plaintiff's plant has been inspected and approved by the Board of Health for sale of milk at wholesale.

(d) That the plaintiff (by and through the Dean 2827 Milk Company or J. C. Wieland-Dean Company or by itself) applied for a permit to use single service containers in the City of Chicago on January 13, 1936; November 5, 1936; December 4, 1937; January 23, 1939 and January 31, 1939; that the necessary sums were paid to the City of Chicago on January 23, 1939 for said permit; and that no action has been taken upon said application.

(e) That ice cream, butter, lard, cottage cheese, other cheese, pickles, soft drinks and liquid coffee are sold daily in the City of Chicago, at retail, in paraffined paper cartons made of virgin spruce pulp.

(f) That ice cream is sold daily in the City of Chicago in metal cans with a thin paraffined paper liner between the ice cream and the metal container; thin paraffined paper is permitted by the Board of Health of the City of Chicago to be placed across the top of metal milk cans underneath the metal cover of such cans; and paraffined drinking cups and paper straws are used daily in the City of Chicago, as well as paraffined paper liners for dishes in which ice cream is served.

(g) That prior to the commencement of this suit and ever since the plaintiff has sold liquid milk and milk prod-

ucts in its single service containers in sixty-eight (68) municipalities in the Counties of Cook, Lake and DuPage, Illinois.

2828 (h) That no new or unusual health hazard exists in the use of paper milk bottles.

(i) That there is no evidence in the record that any public health hazard has been or will be created by the use of paper milk bottles in 485 cities and villages in the United States where it is used daily.

(j) That bacteriological control over the single service container is adequate and sufficient and is at least equal to the control over the glass milk bottle.

(k) That the possibility of contamination from a diseased employee is greater in the case of a glass milk bottle than in paper bottles.

(l) That health hazards in a paper bottle dairy are far less than in a glass bottle dairy.

(m) That no health problem exists in the use of paper bottles which does not exist with glass bottles.

(n) That the bacteria count on glass bottles ready to be filled with milk has been generally found to be higher than on paper bottles.

(o) That paper milk bottles are superior to the glass milk bottle, since there is no chance to spread infectious disease organisms from household to household by a single service container.

(p) That the paper board in the single service container is so free from bacteria that the absorption of milk in the board presents no health problem.

(q) The rinse and disintegration test gives as 2829 adequate control over paper containers as over glass containers, to the end that the public health authorities can determine whether or not the cartons are sterile or contaminated without visiting the mills to examine the paper-making and converting process.

(r) That no strange or offensive odors exist as the result of the use of paper bottles, nor is there any strange taste in the milk distributed in paper bottles.

(s) That since there are no dangerous bacteria in the board to mix with bacteria commonly found in milk, there is no health hazard by reason of absorption of milk into the walls of the paper container.

(t) That paper containers are superior to glass bottles from a public health angle for the distribution of milk be-

cause all chance of spreading disease by re-use of the container is avoided in the use of the single service container.

(u) That the adhesive used in the container is sterile and without bacteria growth; and the taste, color, odor and health giving properties of milk is not harmed by contact with this adhesive.

(v) The paraffin bath used in single service containers is sterile and without bacteria, serves to seal in and destroy any bacteria present, and the chipping off of slivers of paraffin in milk presents no health problem.

(w) The possibility of oxidation of paraffin presents no health hazards.

(x) The paraffin used in plaintiff's container is free from all traces of rancidity or odors.

2830 (y) That sunlight, heat and cold have a more injurious effect upon glass bottles than on paper.

(z) That plaintiff's container is being used successfully in practical operation in 481 municipalities, including New York City, Philadelphia, Baltimore, Washington, D. C., Dayton, Ohio; Indianapolis, Detroit, Seattle, Los Angeles, San Francisco, Oakland, Phoenix; Flint, Michigan and Louisville, Kentucky, and that three to four hundred thousand of said containers are being sold daily.

(aa) That the United States Public Health Service has approved the use of single service containers and has recommended regulations for their control, and the Board of Health of the City of Chicago has recommended an amendment to the ordinance to include single service containers.

(bb) The ordinance does not expressly exclude the use of the single service container for the delivery of milk in quantities of less than one gallon.

(cc) The term "bottle" is loosely used and includes receptacles made of materials other than glass.

(dd) Milk bottles are of various sizes, shapes and colors and there is no such receptacle as a "standard milk bottle."

(ee) The ordinance does not define a "standard milk bottle."

(ff) The ordinance gives the Board of Health unlimited power to determine what is a "standard milk bottle", which is an unwarranted delegation of legislative power to an executive officer.

(gg) The proviso in the ordinance giving the Board of Health power to approve sanitary dispensers for milk in

hotels, soda fountains and restaurants is an unlawful delegation of legislative powers to an administrative body and invalidates the requirement of "standard milk bottles."

(hh) If the ordinance can be construed as prohibiting the use of plaintiff's single service container, it is unreasonable, unjust and oppressive and is therefore void.

(ii) The city ordinance is invalid because repugnant to the policy of the State as declared by the State Legislature which permits the use of paper containers and provides regulations for their use.

(jj) The exclusion of single service containers is unreasonable inasmuch as the Board of Health has recommended an amendment to the ordinance permitting their use.

(kk) The public health safety, comfort or welfare is not interfered with by the use of paper containers and the action of the City of Chicago in excluding its use deprives the plaintiff of property without due process of law in violation of the State and Federal Constitutions.

(ll) The "Public Health Reasons" in the regulations of the Board of Health of the City of Chicago explaining the purposes of Section 3094 of the Ordinance clearly indicate that the use of the single service container would eliminate all of the evils which this section seeks to prevent, and far better than by the use of glass containers.

2832 (mm) If the ordinance excludes the use of plaintiff's container it arbitrarily interferes with private business and prohibits a lawful occupation or imposes unreasonable and unnecessary restrictions upon them, and thus deprives plaintiff of property without due process of law in violation of the State and Federal Constitutions.

(nn) The ordinance denies to plaintiff the Equal Protection of the law in violation of the State and Federal Constitutions because the discrimination against paper bottles is unreasonable and has no substantial relation to the object of the ordinance.

(oo) The ordinance is contrary to the Federal and State Constitutions in that it has been discriminately enforced by the Board of Health in permitting the use of paper containers for the sale of milk in drug stores and restaurants while at the same time denying the right of the plaintiff to sell milk in its paper containers.

(30) The Master should have but fails to recommend a declaratory judgment in this cause to the effect that:

(a) Plaintiff's single service container is a standard milk bottle within the meaning of Section 3094 of the Revised Chicago Code.

(b) The ordinance is invalid as indefinite, as a delegation of legislative power, as unreasonable, as a deprivation of property without due process of law and on account of discriminatory enforcement.

(c) The ordinance is not a valid and reasonable exercise of the ~~police~~ power.

(31) The Master should have found but failed to 2833 find that the only reason given by the Board of Health for its failure to issue a permit to plaintiff for the use of its container in the delivery of milk was that it was awaiting the recommendation of the United States Public Health Service, whose model ordinance and advice furnish the lead for municipalities through the country; that the United States Public Health Service subsequently recommended the use of single service containers; that the Board of Health has recommended to the City Council an amendment to the ordinance so as to expressly provide for the use of such a container; that the failure of the City Council to pass such an amendment or the Board of Health to issue to plaintiff a permit as requested is unreasonable; and the plaintiff is entitled to the protection of the Courts, as against the unreasonable and discriminatory conduct of the defendants.

(32) The Master should have recommended the issuance of an injunction as prayed in the Complaint.

(33) The plaintiff objects to each and all of the recommendations and conclusions of the Master as stated in said Report.

Gariepy & Gariepy and
V. P. Frank,

Attorneys for the Plaintiff.

Filed
May 14,
1940.

2834 And on, to wit, the 14th day of May, A. D. 1940 there was filed in the Clerk's office of said Court a certain Notice, in words and figures following, to wit:

2835 IN THE DISTRICT COURT OF THE UNITED STATES.
• • (Caption—316) • •

NOTICE.

To: Messrs. Gariepy and Gariepy,
1 N. La Salle Street, Chicago, Illinois.
Mr. Victor P. Frank,
33 N. La Salle Street, Chicago, Illinois.

You are hereby notified that on Tuesday, May 14, 1940, at the opening of court or as soon thereafter as counsel may be heard, we shall appear before the Honorable Charles E. Woodward, Judge of the United States District Court for the Northern District of Illinois, Eastern Division, and shall present a motion for the entry of a decree in accordance with the report of the Master in Chancery in this case, a copy of which motion is herewith served upon you.

Barnet Hodes,
Corporation Counsel,
Walter V. Schaefer,
Assistant Corporation Counsel,
Charles P. Horan,
Assistant Corporation Counsel,
Attorneys for Defendants.

Received a copy of the foregoing notice and of the motion therein referred to this 13th day of May, 1940.

Gariepy & Gariepy, (NWE)
Victor P. Frank,
Attorneys for Plaintiff.

2836 And on, to wit, the 14th day of May, A. D. 1940 came the Defendants by their attorneys and filed in the Clcrk's office of said Court, their certain Motion in words and figures following, to wit:

2837 IN THE DISTRICT COURT OF THE UNITED STATES.

• • (Caption—316) • •

Filed
May 14,
1940.

MOTION.

The defendants, by their attorneys, respectfully represent to the court that on April 27, 1940 the report of Jacob J. Grossman, Master in Chancery in this case, making findings of fact and recommending that the court should not issue the injunction or render the declaratory judgment requested, was filed with the clerk of this court. Subsequently, on May 7, 1940, objections to the report of the Master in Chancery were filed by the plaintiff.

The defendants respectfully move for the entry of a decree in accordance with the report of the Master in Chancery.

City of Chicago, a municipal corporation,
Board of Health of the City of Chicago,
Dr. Robert A. Black, Health Commissioner
and Acting President of the Board of
Health of the City of Chicago,

Defendants.

By Barnet Hodes,

Corporation Counsel,

Walter V. Schaefer,

Assistant Corporation Counsel,

Charles P. Horan,

Assistant Corporation Counsel,

Attorneys for Defendants.

2838 And afterwards, to wit, on the 14th day of May, A. D. 1940, being one of the days of the regular May term of said Court, in the record of proceedings thereof, in said entitled cause, before the Honorable Charles E. Woodward, District Judge, appears the following entry, to wit:

Entered
May 14,
1940.

2839 IN THE DISTRICT COURT OF THE UNITED STATES.

* * (Caption—316) * *

Tuesday, May 14, A. D. 1940.

Present: Hon. Charles E. Woodward, District Judge.

This day comes the defendant by its attorneys and enters its motion for entry of decree in accordance with the Master's Report which motion is entered and set for hearing October 16, A. D. 1940 at 10 A. M.

Filed
Oct. 18,
1940.

2840 And on, to wit, the 18th day of October, A. D. 1940 there was filed in the Clerk's office of said Court a certain Memorandum by Judge Woodward, in words and figures following, to wit:

2841 IN THE DISTRICT COURT OF THE UNITED STATES.

* * (Caption—316) * *

MEMORANDUM.

October 18, 1940.

WOODWARD, District Judge:

The argument of the exceptions to the Master's report has taken a wide range. But this lawsuit, like many other lawsuits, resolves itself into very simple elements.

The great preponderance of the evidence is to the effect that the milk containers of the plaintiff—referred to as single service containers—contain no new or unusual health hazard. The evidence shows that they are safe and sanitary containers in which milk may be delivered. The uncontradicted evidence shows also that containers and receptacles less meritorious in structure and design from those of plaintiff's are in daily use in the City of Chicago for the sale of milk, chocolate milk, ice cream, and other liquids by drug stores, hotels, restaurants and soda fountains. Paper containers are also in common use for cheese, cottage cheese, butter, meat, fruit, foods, 2842 drinks and other edibles. The dispensing of such articles—including milk and milk products—in paper

containers is not, as shown by the evidence, deemed to create any hazard to the public health. Moreover, in the cities and villages where similar containers have been used over a substantial period, no epidemic, disease or any public health hazard has been created or suspected as being traced to the use of paper containers. In fact, so far as the evidence shows, no individual instance of serious disease or minor ailment has been traced to the use of paper containers. The results of practical experience are more persuasive than the opposing theories of experts.

The Court finds that the single service containers of the plaintiff, offered and admitted in evidence in this case, conform with the sanitary and health requirements of the city ordinances of the City of Chicago.

The Chicago city ordinance provides that milk and milk products, when sold in quantities of less than one gallon, shall be delivered in "standard milk bottles."

The Court has no difficulty in holding that plaintiff's single service container offered and admitted in evidence in this case is a "milk bottle" within the meaning of the ordinance. The definition of the word "bottle" given by practically all lexicographers, as well as the meaning 2843 of the word as used in common speech, shows that the word has no limited and restricted meaning. It is a word of broad and extensive connotation. Webster's New International Dictionary states, among other things, that the word "bottle is now so loosely used that its limit of application is not well-defined."

There is no requirement either in common speech, or by the dictionary definitions, that a bottle should be made of glass. Historically, in ancient times and in our times in certain parts of Southern Europe, as we are told by the Encyclopedia Britannica, bottles made of skins were and are now used for containing and transporting liquids. While, in modern times, bottles have usually been made of glass, yet of the material out of which bottles have been made may be mentioned, besides glass and skins, hard stone, wood, ivory, bone, porcelain, glazed pottery and common earthenware. In fact, a bottle is not characterized by the material out of which it is made. Whether made of skins or glass or other hard substance a bottle must have certain characteristics. It must be an open mouthed vessel, it must have a neck with an aperture which may be closed with a plug, string or a stopper; and it must be

capable of containing liquids. The Master has described plaintiff's single service container as follows:

2844 "Plaintiff's container is a prismatic box about 6½ inches high and 4½ inches wide, with a gable top, made of paper and paraffined on the inside and outside. In the middle of one of the slanting surfaces of the gable top is a so-called pouring lip which is about an inch square and which is pulled out like an ear when milk is poured out of the container."

Plaintiff's single service container, as described by the Master, has all the characteristics of a "milk bottle", and, as indicated, the Court holds that it is a "milk bottle" within the meaning of the ordinance.

Having found that plaintiff's single service container is a "milk bottle" within the meaning of the ordinance, the next inquiry is, Is it a "standard milk bottle"?

The ordinance contains no definition of the word "standard." No reference is made in the ordinance to any statute, other ordinance or official regulation by which the meaning of the word may be ascertained.

In the absence of official prescription, resort must first be had to the meaning of the word as given by lexicographers. One meaning given to the word by all lexicographers is that which is

"set up and established by authority as a rule for the measure of quantity, weight, extent, value or quality."
(Webster's New International Dictionary.)

It also has the significance of

"an accepted or established rule or model." (Webster's New International Dictionary.)

2845 Funk & Wagnall's New Standard Dictionary defines "standard" as

"having the accuracy or authority of a standard; serving as a gauge, test, guide or model."

A "standard", therefore, may be said to be a type or model accepted as correct.

A standard, if not prescribed by statute or ordinance, would be a type, model or criterion recognized and approved by the class of persons engaged in the particular industry or business under consideration. The industry here under consideration is the milk industry—the delivery of milk for human consumption. If, in any given industry or business, the Court is called upon to declare whether a certain article is a standard article in that industry or

business, resort must be had to what is recognized in such industry or business as a correct and accepted type, model or criterion. The word "standard", as used in the ordinance, must be construed with reference to what articles are accepted in the milk industry as correct and proper containers.

It is perfectly proper, therefore, in construing the word "standard", as used in the ordinance, to consider what is recognized as a "standard milk bottle" in the milk industry, by boards of health, by state statutes and by the United States Public Health Service. In construing the word, the Court is not confined to any local construction which may be given by the local board of health in construing its own ordinance, but may resort to the custom, type or model which is recognized generally in the industry. In other words, the country-wide standard is the one to be determined and applied. The ordinance is not static. The words are general and continuing in their operation. The ordinance must be construed in the light of new and changing conditions and current thought and practice. If, in the course of time, the advancement of science has produced a container which serves the same purpose as a glass container, and if the product delivered therein conforms to the requirements of sanitation prescribed by the health ordinances, then the ordinance must be given such construction as to permit the use of the later developed scientific container.

The record contains much evidence as to the use of the paper containers in New York City, Philadelphia, Boston, Detroit, Cleveland, San Francisco and 480 other cities and villages, including many cities and villages and municipalities in Cook, Lake and DuPage Counties, Illinois. In these cities and municipalities the use of the paper container for the delivery of milk is recognized by ordinance, custom, usage and common acceptance as being a standard article in which milk may be delivered. Besides, under the statutes of the State of Illinois (Ill. Rev. Stat.) 1939, Ch. 56½, par. 129) single service paper containers are recognized as proper and safe receptacles for the delivery of milk in the State of Illinois. The United States Public Health Service also has recommended a model ordinance for adoption for the City of Chicago which expressly permits the use of paper containers.

The Court holds that plaintiff's single service paper con-

tainers, as offered and admitted in evidence, are "standard milk bottles" within the meaning of the ordinance.

The ordinance thus construed has no constitutional infirmity.

Any other construction would render the ordinance void. Moreover, the Court is of opinion that under the recent statute of Illinois, heretofore referred to, the city is without power to prohibit the use of single service containers if such containers conform with the provisions of the statute.

2848 The Court will enter a declaratory judgment in accordance with the prayer of the complaint finding that plaintiff's single service containers are in conformity with the ordinance and enjoining the defendant from interfering with plaintiff in the sale and delivery of milk and milk products in single service containers.

A formal order on exceptions to the Master's report, findings of fact and conclusions of law, and a decree in conformity with this recommendation may be tendered after notice.

Filed
Oct. 23,
1940. 2852 And afterwards, to wit, on the 23rd day of October, A. D. 1940, being one of the days of the regular October term of said Court, in the record of proceedings thereof, in said entitled cause, before the Honorable Charles E. Woodward, District Judge, appears the following entry, to wit:

2853 IN THE DISTRICT COURT OF THE UNITED STATES.

• • (Caption—316) • •

FINDINGS OF FACT.

The Court finds the facts herein specially as follows:

1. The plaintiff is a resident and citizen of Michigan and the defendants are residents and citizens of the State of Illinois.

2. The amount in controversy exclusive of interest and costs exceeds Three Thousand Dollars (\$3,000.00).

3. An actual and bona fide controversy exists between the plaintiff on one hand and the defendants on the other as to the interpretation and validity of Section 3094 of the Revised Chicago Code of 1931, as amended on Janu-

ary 4, 1935 (now re-enacted as section 154-15, Municipal Code of Chicago, 1939, but hereinafter for convenience called "Section 3094".)

4. The defendants prior to the institution of this suit and at all times thereafter have contended that section 3094 prohibits the use of the "Pure-Pak" paper milk bottle referred to in the complaint and evidence herein for delivering milk in the city of Chicago in less than gallon 2854 quantities. They also contended and still contend that as so interpreted, said section 3094 is valid.

5. The plaintiff has contended and still contends that section 3094 does not prohibit said use of the Pure-Pak paper milk bottle and that if the section is construed so as to prohibit such use it is unreasonable, discriminatory, and void and in violation of section 2 of article 2 of the Constitution of the State of Illinois and of section 1 of the 14th Amendment to the Constitution of the United States.

6. The defendants have threatened to and unless enjoined by the Court will arrest and prosecute the plaintiff's officers, agents and employees if they deliver milk in the City of Chicago in less than gallon quantities in said Pure-Pak paper milk bottles. The actions and threats of the defendants irreparably damage the plaintiff. The plaintiff has no adequate remedy at law.

7. Section, 3094 provides in part:

"The sale of dipped milk and milk products is hereby expressly prohibited. . . . Any milk or milk products sold in quantities of less than one gallon shall be delivered in standard milk bottles; provided, however, that nothing herein contained shall be construed to prohibit hotels, soda fountains, restaurants and similar establishments from dispensing milk or milk products from sanitary dispensers approved by the Board of Health. . . ."

8. The Pure-Pak paper milk bottle is a standard milk bottle.

9. The Pure-Pak paper milk bottle contains no new or unusual health hazard and they are safe and sanitary containers for the delivery of milk, cream and milk products.

10. The Pure-Pak paper milk bottle conforms with the sanitary and health requirements of the city ordinances of the City of Chicago.

2855 11. The Pure-Pak paper milk bottle conforms with the provisions of the state statute of Illinois (Illinois

Revised Statutes, 1939, chapter 561, para. 129, item 10,) and the regulations of the Illinois Department of Health.

12. If section 3094 were to be construed to prohibit the use of plaintiff's Pure-Pak paper milk bottle for the delivery of milk in the City of Chicago in less than gallon quantities, said ordinance would be unreasonable and discriminatory and without any reasonable basis.

Enter this 23rd day of October, A. D. 1940.

Charles E. Woodward,
Judge.

Filed
Oct. 23,
1940. 2856 And afterwards, to wit, on the 23rd day of October, A. D. 1940, being one of the days of the regular October term of said Court, in the record of proceedings thereof, in said entitled cause, before the Honorable Charles E. Woodward, District Judge, appears the following entry, to wit:

2857. IN THE DISTRICT COURT OF THE UNITED STATES.

• • (Caption—316) • •

CONCLUSIONS OF LAW.

The Court concludes as matters of Law:

1. This Court has jurisdiction of this suit on account of diversity of citizenship and presence of the jurisdictional amount.

2. This suit is properly brought and prosecuted under the Federal Declaratory Judgment statute (48 Stat. L. 955) and the Federal Rules of Civil Procedure relating thereto.

3. The Court has equitable jurisdiction to grant an injunction herein as prayed in the plaintiff's complaint.

4. Section 3094 of the Revised Chicago Code, 1931, as amended (reenacted August 30, 1939 as Section 154-15 of the Municipal Code of Chicago, 1939, but hereinafter for convenience referred to as "Section 3094") properly interpreted does not prohibit the delivery of milk or milk products in the plaintiff's "Pure-Pak" paper milk bottle 2858 in quantities of less than one gallon in the City of Chicago.

5. If Section 3094 were to be construed to prohibit the use of plaintiff's single-service paper containers, said con-

struction would render said provision and requirements of the ordinance void.

6. The plaintiff is entitled to a declaratory judgment that its said single-service container complies with the ordinances of the City of Chicago.

7. The plaintiff is entitled to an injunction restraining the defendants, their officers and agents from interfering with plaintiff in the sale and delivery of milk and milk products in said Pure-Pak paper milk bottles.

8. The plaintiff is equitably entitled to have the costs of this proceeding taxed against and paid by the defendants. Enter this 23rd day of October, A. D. 1940.

Charles E. Woodward,
Judge.

2859 And afterwards, to wit, on the 23rd day of October, A. D. 1940, being one of the days of the regular October term of said Court, in the record of proceedings thereof, in said entitled cause, before the Honorable Charles E. Woodward, District Judge, appears the following entry, to wit:

Entered
Oct. 23,
1940.

2860 IN THE DISTRICT COURT OF THE UNITED STATES.

• • (Caption—316) • •

DECREE.

This cause coming on to be heard on the pleadings herein, the stipulations of the parties filed herein, the report of the Master in Chancery to whom this suit was referred and the evidence taken before him, and the written objections to the said master's report and the Court having heard the arguments of counsel on said objections and being fully advised in the premises,

Doth File herein this day its finding of facts and its conclusions of law duly authenticated by the signature of the judge of this Court, and

Doth Further Order, Adjudge and Decree:

1. That a declaratory judgment be and the same is hereby entered in this cause that the plaintiff's Pure-Pak single-service paper milk bottle is a "standard milk bottle" and that the same conforms with the city ordinances of the City

of Chicago and with the provisions of the State statute of Illinois (Illinois Revised Statutes (1939) Chapter 56½, Paragraph 129, Item 10) and the regulations of the Illinois Department of Health.

2861 2. That the defendants and each of them, and their officers, attorneys, agents, inspectors, employees, and all persons acting in privity with them or any of them, be and they hereby are restrained and enjoined perpetually (or until the further order of this Court) from in any manner or by any means preventing or in anywise interfering with the sale and delivery by the plaintiff, its officers, agents and employees, of milk and milk products in the City of Chicago in less than gallon quantities in the plaintiff's Pure-Pak paper milk bottle; provided that the sale and the delivery of said milk and milk products by the plaintiff in Pure-Pak single-service paper milk bottles conforms with the ordinances of the City of Chicago and the statutes of the State of Illinois. And the Clerk of this Court is hereby directed to issue an injunction under the seal of this Court to the defendants, restraining and enjoining them accordingly.

3. That the Master's fee for his services herein is hereby fixed at the sum of \$3500.00, which sum is hereby taxed as costs herein.

4. It appearing that the services of a court reporter were necessary to take down and to transcribe the evidence heard before the Master and that the fair, reasonable and customary charge for said services is the sum of \$1284.00, said sum is hereby taxed as costs herein.

5. That said costs as taxed aforesaid (less any amounts heretofore paid by said defendants on account of Master's fee and on account of the attendance of the court reporter before the Master and the original transcript of evidence) be paid by the defendants herein to Jacob I. Grossman, Master in Chancery, within thirty (30) days of this date. The Master shall from said payment, when received, refund to the plaintiff all sums heretofore advanced by the plaintiff on account of Master's fee and on account of the attendance of the court reporter before the Master and the original transcript of evidence.

6. That the plaintiff do have and recover of and from the defendants its costs by it expended herein, to be taxed by the Clerk of this Court and that execution on said judgment for costs issue against the individual defendants here-

in if requested by the plaintiff and that said judgment against the City of Chicago be paid by it in due course of law.

7. That the plaintiff's cash deposit with the Clerk of this Court for costs, less any sum expended therefrom, and less the Clerk's statutory fee be returned by the Clerk to the plaintiff.

Objections to the report of the Master in Chancery standing as exceptions are hereby sustained.

Enter, this 23rd day of October, A. D. 1940.

Charles E. Woodward,
Judge.

2849 And on, to-wit, the 23rd day of October, A. D. 1940, there was in the Clerk's office of said Court a certain Master's Certificate, in words and figures following, to-wit:

Filed
Oct. 23,
1940.

2850 IN THE DISTRICT COURT OF THE UNITED STATES.

• • • (Caption—316) • •

MASTER'S CERTIFICATE.

Shortly after this reference was made the parties requested an early hearing, and hearings were held during the summer and early fall of 1939. The hearings extended during the period from May 31 to October 26, 1939. They were held at times convenient to out of town expert witnesses. The evidence was quite technical. Through suggestions of the Master, agreements were made by which costly experiments which would have taken a number of months, were eliminated. A number of briefs were filed, the last of which was submitted in March, 1940. It was necessary to have a stenographic transcript of the proceeding. The transcript of the testimony, exclusive of exhibits, totaled 2157 pages. The stenographic bill of the parties themselves was \$1941.45, including carbons. The total taxable for attendance and original copy of transcript is \$1284. This amount has been paid to the stenographers by the parties in proportion to the amount of testimony introduced by them, that is to say, \$984.50 by plaintiff and \$299.50 by defendant. On account of Master's fees plaintiff advanced \$1800 and defendant \$650. The Master spent more than 200 hours in exam-

1762

Notice of Appeal.

ining pleadings, hearing the evidence, conferring with counsel, reading and considering the voluminous briefs and the evidence, preparing a report and considering 2851 objections, and revising the report. On a finding of the issues in its favor plaintiff is entitled to recover from defendant the amounts advanced by it.

Dated at Chicago, Illinois, this 21st day of October, 1940.

Respectfully submitted,

Jacob I. Grossman,

Jacob I. Grossman,

Master in Chancery.

Filed
Oct. 23,
1940.

2863 And on, to-wit, the 23rd day of October, A. D. 1940, came the Defendants, by their attorneys and filed in the Clerk's office of said Court their certain Notice of Appeal in words and figures following, to-wit:

2864 IN THE DISTRICT COURT OF THE UNITED STATES.

For the Northern District of Illinois,

Eastern Division.

Fieldcrest Dairies, Inc.,

Plaintiff,

vs.

City of Chicago, a municipal corporation, Board of Health of the City of Chicago, Dr. Robert A. Black, Health Commissioner and Acting President of Board of Health of the City of Chicago,

Defendants.

No. 316

In Chancery.

NOTICE OF APPEAL TO CIRCUIT COURT OF APPEALS FOR THE SEVENTH CIRCUIT UNDER RULE 73 (b).

Notice is hereby given that City of Chicago, a municipal corporation, Board of Health of the City of Chicago, Dr. Robert A. Black, Health Commissioner and Acting President of the Board of Health of the City of Chicago, defendants above named hereby appeal to the Circuit Court of Appeals for the Seventh Circuit from the final decree

entered in this action on the 23rd day of October, 1940, which decree embraced a declaratory judgment, appeal from which is hereby taken as well as from all other portions of said decree.

Barnet Hodes,
Corporation Counsel of the
City of Chicago, Attorney
for said Defendants.

511 City Hall,
Chicago, Illinois.

Alexander J. Resa,
J. Herzl Segal,
L. Louis Karton,
Assistant Corporation Counsel,
of Counsel.

2877 And on, to-wit, the 15th day of November, A. D. 1940, came the Defendants-Appellants by their attorneys and filed in the Clerk's office of said Court their certain Statement of Points, in words and figures following, to-wit:

Filed
Nov. 15,
1940.

2878 IN THE DISTRICT COURT OF THE UNITED STATES.

• • (Caption—316) • •

STATEMENT OF POINTS UPON WHICH APPELLANTS INTEND TO RELY ON APPEAL.

The appellants intend to rely on the following points on appeal to secure a reversal of the decree in this case:

1. The District Court erred in entering a declaratory judgment that the plaintiff's Pure-Pak single-service paper containers is a "standard milk bottle" and that the same conforms with the city ordinances and with the statutes of the State of Illinois and the regulations of the Illinois Department of Health.

2. The District Court erred in refusing to hold that the plaintiff's Pure-Pak single-service paper container is not a "standard milk bottle" within the meaning of the city ordinances of the City of Chicago.

3. The District Court erred in ordering an injunction to issue restraining the defendants from preventing or interfering with the sale and delivery by the plaintiff of milk and milk products in the plaintiff's Pure-Pak paper container.

2879 4. The District Court erred in not dismissing the complaint for want of equity.

5. The District Court erred in not overruling the objections to the report of the master in chancery standing as exceptions.

6. The District Court erred in sustaining the objections to the report of the master in chancery standing as exceptions.

7. The District Court erred in entering judgment against the defendants for plaintiff's costs by it expended herein.

8. The District Court erred in the following findings of fact:

"8. The Pure-Pak paper milk bottle is a standard milk bottle.

"9. The Pure-Pak paper milk bottle contains no new or unusual health hazard and they are safe and sanitary containers for the delivery of milk, cream and milk products.

"10. The Pure-Pak paper bottle conforms to the sanitary and health requirements of the city ordinances of the City of Chicago.

"11. The Pure-Pak paper milk bottle conforms with the provisions of the state statute of Illinois (Illinois Revised Statutes, 1939, chapter 56½, para. 129, item 10), and the regulations of the Illinois Department of Health.

"12. If section 3094 were to be construed to prohibit the use of plaintiff's Pure-Pak paper milk bottle for the delivery of milk in the City of Chicago in less than gallon quantities, said ordinance and without any reasonable basis."

9. The District Court erred in the following conclusions of law:

2880 "4. Section 3094 of the Revised Chicago Code, 1931, as amended (re-enacted August 30, 1939, as Section 154-15 of the Municipal Code of Chicago, 1939, but hereinafter for convenience referred to as 'Section 3094') properly interpreted does not prohibit the delivery of milk or milk products in the plaintiff's 'Pure-Pak' paper milk bottle in quantities of less than one gallon in the City of Chicago.

"5. If Section 3094 were to be construed to prohibit the use of plaintiff's single-service paper containers, said construction would render said provision and requirements of the ordinance void.

"6. The plaintiff is entitled to a declaratory judgment that its said single-service container complies with the ordinances of the City of Chicago.

"7. The plaintiff is entitled to an injunction restraining the defendants, their officers and agents from interfering with plaintiff in the sale and delivery of milk and milk products in said Pure-Pak paper milk bottles.

"8. The plaintiff is equitably entitled to have the costs of this proceeding taxed against and paid by the defendants."

Barnet Hodes,
*Corporation Counsel of the
City of Chicago; Attorney
for said defendants-appel-
lants.*

Alexander J. Resa,
J. Herzl Segal,
L. Louis Karton,
*Assistant Corporation Counsel,
Of Counsel.*

Received a copy of the foregoing statement of points this 15th day of November, 1940.

Fred A. Gariepy, (W. E.)
Attorney for plaintiff-appellee.

2865 IN THE DISTRICT COURT OF THE UNITED STATES.

• • (Caption—316) • •

I, Hoyt King, Clerk of the United States District Court for the Northern District of Illinois, Eastern Division, keeper of the Seal and Records of said Court, do hereby certify that on the 24th day of October, A. D. 1940, I did cause to be mailed to Messrs. Gariepy and Gariepy, Attorneys for the Plaintiff, at One LaSalle Street, Chicago, Illinois, a copy of the Notice of Appeal filed by the defendant, The City of Chicago, a municipal corporation, on October 23, A. D. 1940, in accordance with Rule 73(b) of the Rules of Civil Procedure for the District Courts of the United States, in the above entitled cause.

In Testimony Whereof, I have hereunto subscribed my name and affixed the seal of the aforesaid Court, at Chicago, Illinois, this 7th day of January, A. D. 1941.

(Seal)

Hoyt King,
Clerk.

Filed
Oct. 24,
1940.

2872 . And on, to wit, the 24th day of October, A. D. 1940 came the Defer lants-Appellants by their attorneys and filed in the Clerk's office of said Court their certain Designation of Contents of Short Record on Appeal in words and figures following, to wit:

2873 IN THE DISTRICT COURT OF THE UNITED STATES.

• • (Caption—316) • •

**APPELLANTS' DESIGNATION OF CONTENTS OF
SHORT RECORD ON APPEAL.**

The Clerk of the District Court of the United States, Northern District of Illinois, Eastern Division, is hereby requested to prepare a short record for transmittal to the Circuit Court of Appeals for the Seventh Circuit, said short record to be made up so as to include the following documents:

1. Final decree entered in the above entitled cause on, to wit, October 23, 1940.
2. Notice of appeal filed on, to wit, October 23, 1940.
3. Motion of the defendants filed on, to wit, October 24, 1940 for supersedeas.
4. Notice together with proof of service thereof filed on, to wit, October 24, 1940 of aforesaid motion for supersedeas.
5. Order entered on, to wit, October 24, 1940 denying defendants' motion for supersedeas.
6. This designation of contents of short record on appeal together with proof of service thereof filed on, to wit, October 24, 1940.

Barnet Hodes,
*Corporation Counsel of the City of
Chicago,*
Attorney for said Defendants.

Alexander J. Resa,
J. Herzl Segal,
L. Louis Farton,

Assistant Corporation Counsel.

Dated: October 24, 1940.

Received a copy of the foregoing appellants' designation of contents of short record on appeal this 24th day of October, 1940.

Fred A. Gariepy, (WE)
Attorney for Plaintiff.

2874 And on, to wit, the 8th day of November, A. D. 1940 came the Defendants-Appellants by their attorneys and filed in the Clerk's office of said Court their certain Bond on Appeal, in words and figures following, to wit:

Filed
Nov. 8,
1940.

2875 IN THE DISTRICT COURT OF THE UNITED STATES.

• • (Caption—316) • •

BOND ON APPEAL

Know All Men by These Presents, That we, City of Chicago, a municipal corporation, The Board of Health of the City of Chicago, and Dr. Robert A. Black, Health Commissioner and Acting President of the Board of Health of the City of Chicago, as principals, and United States Fidelity and Guaranty Company, a Maryland corporation, as surety, are held and firmly bound unto Fieldcrest Dairies, Inc., a corporation, in the full and just sum of Two Hundred and Fifty Dollars (\$250.00) to be paid to the said Fieldcrest Dairies, Inc., a corporation, its attorneys, executors, administrators or assigns; to which payment, well and truly to be made, we bind ourselves and our successors in office, jointly and severally, firmly by these presents. Sealed with our seals and dated this 31st day of October in the year of our Lord One Thousand Nine Hundred and Forty.

Whereas, lately at a session of the District Court of the United States for the Northern District of Illinois, Eastern Division, in a suit pending in said court between Fieldcrest Dairies, Inc., a corporation, plaintiff, and City of Chicago, a municipal corporation, The Board of Health of the City of Chicago, and Dr. Robert A. Black, Health Commissioner and Acting President of the Board of Health of the City of Chicago, defendants, a decree was rendered against the said City of Chicago, a Municipal corporation, The Board of Health of the City of Chicago, and Dr. Robert A. Black, Health Commissioner and Acting President of the Board of Health of the City of Chicago, and the said City of Chicago, a municipal corporation, The Board of Health of the City of Chicago, and Dr. Robert A. Black, Health Commissioner and Acting President of the Board of Health of the City of Chicago, having filed their

notice of appeal to the United States Circuit Court of Appeals for the Seventh Circuit in the clerk's office of the said District Court to reverse the decree of the aforesaid suit in the United States Circuit Court of Appeals for the Seventh Circuit to be holden at Chicago within forty days from the date hereof.

Now the condition of the above obligation is such, that if the said City of Chicago, a municipal corporation, The Board of Health of the City of Chicago, and Dr. Robert A. Black, Health Commissioner and Acting President of the Board of Health of the City of Chicago, shall prosecute their said appeal to effect, and shall answer all costs that may be awarded against them if they fail to make their plea good, then the above obligation to be void; otherwise to remain in full force and virtue.

City of Chicago, a Municipal Corporation,
By Edward J. Kelly,

(City Seal)

Mayor of the City of Chicago.

Attest:

Ludwig D. Schreiber,
Clerk of the City of Chicago.

Board of Health of the City of Chicago,
By Herman N. Bundesen,
President.

Attest:

Frances A. Dulak,
Secretary.

United States Fidelity and Guaranty Com-
pany, a Maryland corporation,
By Edmond J. Moroney,
Attorney-in-fact.

(Corp. Seal)

Approved as to Form
Joseph F. Grossman,
*First Assistant Corporation
Counsel.*

2868 And on, to wit, the 24th day of October, A. D. 1940
there was filed in the Clerk's office of said Court a
certain Notice, in words and figures following, to wit:

2869 IN THE DISTRICT COURT OF THE UNITED STATES.
• • (Caption—316) • •

Filed
Oct. 24,
1940.

NOTICE.

To: Gariepy & Gariepy,
1 N. La Salle St.,
Chicago, Illinois.

Please Take Notice that on Thursday, October 24, 1940, at the opening of court in the forenoon or as soon thereafter as counsel may be heard, we shall appear before the Honorable Charles E. Woodward, Judge of the United States District Court and shall move on behalf of the defendants in the above entitled cause that the final decree (including the declaratory judgment therein embraced) heretofore entered on October 23, 1940, be stayed and that the injunction therein granted be suspended during the pendency of the appeal which has been perfected from said decree, and shall move that the supersedeas be effective without the filing of any bond by said defendants and that the court enter such order or orders as it may consider proper pursuant to the powers vested in the court by Rule 62 of the Rules of Civil Procedure for the District Courts of the United States, a copy of which motion is herewith served upon you; at which time and place you may appear if you so see fit.

Barnet Hodes,
*Corporation Counsel of the City of
Chicago,*
Attorney for said Defendants.
511 City Hall, Chicago, Illinois.

Alexander J. Resa,
J. Herzl Segal,
L. Louis Karton,
Assistant Corporation Counsel.

Received a copy of the foregoing notice, together with motion therein referred to this 23rd day of October, A. D. 1940.

Gariepy & Gariepy, H
Attorneys for Plaintiff.

Filed
Oct. 24,
1940.

2866 And on, to wit, the 24th day of October, A. D. 1940 came the Defendants by their attorneys and filed in the Clerk's office of said Court their certain Motion, in words and figures following, to wit:

2867 IN THE DISTRICT COURT OF THE UNITED STATES.
• • (Caption—316) • •

MOTION.

Now come City of Chicago, a municipal corporation, Board of Health of the City of Chicago, Dr. Robert A. Black, Health Commissioner and Acting President of the Board of Health of the City of Chicago, defendants in the above entitled cause and having heretofore filed their notice of appeal to the Circuit Court of Appeals for the Seventh Circuit from the decree heretofore entered on October 23, 1940, move the court that during the pendency of said appeal said decree (including the declaratory judgment therein embraced) be stayed and that the injunction therein granted be suspended, and further move that by reason of the fact that the defendants are a municipal corporation and officers thereof acting in their official capacities that said defendants be excused from filing any bond as a prerequisite of the supersedeas herein requested, and that the court enter such other and further orders relating to said supersedeas as it considers proper pursuant to the power vested in the court by Rule 62 of the Rules of Civil Procedure for the District Courts of the United States.

Barnet Hodes,
*Corporation Counsel of the City of
Chicago,*
Attorney for said Defendants,
511 City Hall, Chicago, Illinois.

Alexander J. Resa,
J. Herzl Segal,
L. Louis Karton,
*Assistant Corporation Counsel,
of Counsel.*

2870 And afterwards, to wit, on the 24th day of October, A. D. 1940, being one of the days of the regular October term of said Court, in the record of proceedings thereof, in said entitled cause, before the Honorable Charles E. Woodward, District Judge, appears the following entry, to wit:

Entered
Oct. 24,
1940.

2871 IN THE DISTRICT COURT OF THE UNITED STATES.

• • (Caption—316) • •

ORDER.

This cause coming on to be heard on defendants' motion, after due notice; and the defendants now moving for a stay of the judgment and suspension of the injunction pursuant to the powers vested in this Court under Rule 62 of the Rules of Civil Procedure for the District Courts of the United States; and the Court being fully advised in the premises and having jurisdiction of the parties and the subject matter,

It Is Ordered that said motion of the defendants for a stay of the judgment and a suspension of the injunction be, and the same is hereby denied.

Enter:

Woodward,
Judge.

October 24, 1940.

2887 And on, to wit, the 15th day of November, A. D. 1940, came the Defendants-Appellants by their attorneys and filed in the Clerk's office of said Court their certain Designation of Portions of Record, Proceedings and Evidence to be contained in the Record on Appeal, in words and figures following, to wit:

2888 IN THE DISTRICT COURT OF THE UNITED STATES.

• • (Caption—316) • •

**APPELLANTS' DESIGNATION OF THE PORTIONS
OF THE RECORD, PROCEEDINGS AND EVIDENCE
TO BE CONTAINED IN THE RECORD ON APPEAL.**

The Clerk of the District Court of the United States, Northern District of Illinois, Eastern Division, is hereby requested to prepare the record for transmittal to the Circuit Court of Appeals for the Seventh Circuit, said record to be made up so as to include the following documents:

1. Complaint and exhibit attached thereto filed on, to-wit, February 2, 1939.

2. Plaintiff's Exhibit A filed on, to-wit, February 2, 1939.

3. Answer of defendants filed on, to-wit, February 27, 1939 with exhibits attached thereto.

4. Order entered on, to-wit, May 12, 1939 referring the cause to Master Grossman.

5. All depositions filed on, to-wit, May 24, 1939, or in lieu thereof a condensed statement in narrative form of the testimony contained in said depositions if the same be furnished by the parties hereto.

6. Notice filed on, to-wit, May 25, 1939.

7. Order approving stipulation entered on, to-wit, May 25, 1939.

7. Order approving stipulation entered on, to-wit, May 25, 1939.

8. Stipulation filed on, to-wit, June 29, 1939.

2889 9. Order approving stipulation entered on, to-wit, June 29, 1939.

10. Master's report filed on, to-wit, April 27, 1940.

11. Objections to depositions filed on, to-wit, April 27, 1940.

12. All of the plaintiff's and defendants' exhibits filed on, to-wit, April 27, 1940.

13. Transcript of testimony before the master in chancery consisting of three volumes filed on, to-wit, April 27, 1940, or in lieu thereof a condensed statement in narrative form of all or part of the testimony if the same be furnished by the parties hereto.

14. Notice and objections to final and modified report of the master in chancery filed on, to-wit, May 7, 1940.

Designation of Record.

1773

15. Notice filed on, to-wit, May 14, 1940.
 16. Motion of defendants filed on, to-wit, May 14, 1940.
 17. Order entered on, to-wit, May 14, 1940.
 18. Memorandum of Woodward, District Judge, filed on, to-wit, October 18, 1940.
 19. Master's certificate filed on, to-wit, October 23, 1940.
 20. Findings of fact filed on, to-wit, October 23, 1940.
 21. Conclusions of law filed on, to-wit, October 23, 1940.
 22. Final decree entered on, to-wit, October 23, 1940.
 23. Notice of appeal filed on, to-wit, October 23, 1940.
 24. Proof of service of notice of appeal.
 25. Motion of defendants for supersedeas filed on, to-wit, October 24, 1940.
 26. Notice filed on, to-wit, October 24, 1940.
 27. Order entered on, to-wit, October 24, 1940 denying motion for supersedeas.
 - 2890 28. Designation of contents of short record on appeal together with proof of service thereof filed on, to-wit, October 24, 1940.
 29. Cost bond on appeal filed on, to-wit, November 8, 1940.
 30. This designation of contents of the record on appeal.
 31. Statement of points on which defendants intend to rely on the appeal to be filed herein.
 32. Any documents hereafter filed, orders hereafter entered, or proceedings hereafter had in this case prior to the transmittal of the record to the Circuit Court of Appeals.
- Dated: November 15, 1940.

Barnet Hodes,
*Corporation Counsel of the City of
Chicago, Attorney for said defend-
ants-appellants.*

Alexander J. Resa,
J. Herzl Segal,
L. Louis Karton,
*Assistant Corporation Counsel,
Of Counsel.*

Received a copy of the foregoing designation of contents of record on appeal this 15th day of November, 1940.

Fred A. Gariepy,
Attorney for plaintiff-appellee.

Entered
Nov. 28,
1940.

2881 And afterwards, to wit, on the 28th day of November, A. D. 1940, being one of the days of the regular November term of said Court, in the record of proceedings thereof, in said entitled cause, before the Honorable Charles E. Woodward, District Judge, appears the following entry, to wit:

2882 IN THE DISTRICT COURT OF THE UNITED STATES.

• • (Caption—316) • •

Thursday, November 28, A. D. 1940.

Present: Hon. Charles E. Woodward, District Judge.

This cause coming on to be heard upon the motion of the defendant by its attorneys to extend the time to file the record on appeal to and including January 20, A. D. 1941 It Is Ordered that said motion be and the same is hereby allowed and the time to file the record on appeal in the Circuit Court of Appeals for the Seventh Circuit be and the same is hereby extended to and including January 20, A. D. 1941.

Filed
Jan. 13,
1941.

2883 And on, to wit, the 13th day of January, A. D. 1941, there was filed in the Clerk's office of said Court a certain Stipulation in words and figures following, to wit:

2884 IN THE DISTRICT COURT OF THE UNITED STATES.

• • (Caption—316) • •

STIPULATION.

It is stipulated by and between the parties hereto by their attorneys that all original documentary exhibits received in evidence on behalf of the plaintiff and the defendants may be incorporated and used in the record in this cause on appeal to the Circuit Court of Appeals for the Seventh Circuit.

It is hereby stipulated by and between the parties hereto by their attorneys that the original depositions of Paul V. Keyser, Jr. and Herbert M. Packer, Elkan H. Yunker,

Florence Johnston and A. E. Carpenter, filed in this cause on May 24, 1939, may be used in the transcript of the record on appeal in lieu of copies thereof.

Barnet Hodes,
Corporation Counsel of the City of Chicago,

By James A. Velde,
Assistant Corporation Counsel, Attorney for Defendants.

Gariepy & Gariepy,
Fred A. Gariepy,
Attorneys for Plaintiff.

2885. And afterwards, to wit, on the 13th day of January, A. D. 1941, being one of the days of the regular December, 1940 term of said Court, in the record of proceedings thereof, in said entitled cause, before the Honorable Charles E. Woodward, District Judge, appears the following entry, to wit:

Entered
Jan. 13,
1941.

2886 IN THE DISTRICT COURT OF THE UNITED STATES.

• • (Caption—316) • •

ORDER.

This cause coming on to be heard upon the motion of the defendants and upon the stipulation of the parties hereto, it is ordered that all original documentary exhibits received in evidence on behalf of the plaintiff and the defendants may be incorporated and used in the record in this cause on appeal to the Circuit Court of Appeals for the Seventh Circuit; and that the original depositions of Paul V. Keyser, Jr. and Herbert M. Packer, Elkan H. Yunker, Florence Johnston and A. E. Carpenter, filed in this cause on May 24, 1939 may be used in the transcript of the record on appeal in lieu of copies thereof.

Enter:

Charles E. Woodward,
Judge.

Dated at Chicago this 13th day of January, A. D. 1941.

2891 Northern District of Illinois, } ss.
 Eastern Division.

I, Hoyt King, Clerk of the District Court of the United States for the Northern District of Illinois, do hereby certify the above and foregoing to be a true and complete transcript of the proceedings had of record made in accordance with Designation filed in this Court in the cause entitled Fieldcrest Dairies, Inc. vs. The City of Chicago, et al, Civil Action No. 316, (including original documentary exhibits of both parties and depositions filed May 24, 1939) as the same appear from the original records and files thereof now remaining in my custody and control.

In Testimony Whereof, I have hereunto set my hand and affixed the seal of said Court at my office, in the City of Chicago, in said District, this 18th day of January, A. D. 1941.

Hoyt King,
 Clerk.

(Seal)

IN THE UNITED STATES CIRCUIT COURT OF APPEALS

For the Seventh Circuit.

Fieldcrest Dairies, Inc., a corporation,
 Plaintiff-Appellee,
 vs.

City of Chicago, a municipal corporation, et al.,
 Defendants-Appellants.

No. 7592.

STIPULATION.

It Is Hereby stipulated by and between the parties hereto, by their attorneys, that the Clerk of the Circuit Court of Appeals, in printing the record, may make the following omissions:

1. Plaintiff's Exhibit B attached to complaint filed in the District Court on February 2, 1939 and defendants' Exhibit 24 filed in the District Court on April 27, 1940 may be omitted and in the place of each exhibit an appropriate

notation may be inserted by the clerk to the effect that the exhibit omitted appears in the record as Exhibit A attached to the answer of the defendants filed in the District Court on February 27, 1939.

2. Two documents in the record filed in the District Court on April 27, 1940, one entitled "List of Plaintiff's Exhibits" and the other "List of Defendants' Exhibits" may be omitted.

3. Plaintiff's Exhibit 15 may be omitted with an appropriate notation inserted in its place that the exhibit appears in the record as Figures 2 and 3 of Plaintiff's Exhibit 12.

4. Plaintiff's Exhibit 15 marked "Withdrawn" may be omitted.

5. Plaintiff's Exhibit 20 may be omitted with an appropriate notation inserted in its place that the exhibit appears in the record as part of Plaintiff's Exhibit 4.

6. Except for the front cover sheet, all of Plaintiff's Exhibit 42 may be omitted.

7. Defendants' Exhibit 28 may be omitted with an appropriate notation inserted in its place that the exhibit appears in the record as the stipulation filed in the District Court on June 29, 1939.

1/30/31

Barnet Hodes,
*Corporation Counsel of the City of
Chicago, Attorney for defendants-
appellants,*

By James A. Velde,
Assistant Corporation Counsel.
Fred A. Gariepy,
Attorney for plaintiff-appellee.

Approved:

Sparks,
C. J.

Jan. 31, 1941.

Endorsed: In the United States Circuit Court of Ap-
peals. • • • (Caption—7502) • • • Stipulation.
Filed Jan. 31, 1941, Kenneth J. Carrick, Clerk.

UNITED STATES CIRCUIT COURT OF APPEALS
For the Seventh Circuit.

I, Kenneth J. Carrick, Clerk of the United States Circuit Court of Appeals for the Seventh Circuit, do hereby certify that the foregoing printed pages contain a true copy of Volume 3 of the printed record, printed under my supervision, and filed on the twenty-first day of February, 1941, which, together with Volumes 1 and 2, constitutes the record in the following entitled cause:

Cause No. 7502.

Fieldcrest Dairies- (Inc.),
Plaintiff-Appellee,
vs.

City of Chicago (a Municipal Corporation), Board of Health of the City of Chicago, Dr. Robert A. Black, Health Commissioner and Acting President of Board of Health of the City of Chicago,
Defendants-Appellants,

as the same remains upon the files and records of the United States Circuit Court of Appeals for the Seventh Circuit.

In Testimony Whereof I hereunto subscribe my name and affix the seal of said United States Circuit Court of Appeals for the Seventh Circuit, at the City of Chicago, this 5th day of September, A. D. 1941.

(Seal)

Kenneth J. Carrick,
*Clerk of the United States Circuit Court
of Appeals for the Seventh Circuit.*

At a regular term of the United States Circuit Court of Appeals for the Seventh Circuit held in the City of Chicago and begun on the first day of October in the year of our Lord one thousand nine hundred and forty of our Independence the one hundred and sixty-fifth.

Fieldcrest Dairies (Inc.),
Plaintiff-Appellee,

No. 7502

vs.

City of Chicago (a Municipal Corporation), Board of Health of the City of Chicago, Dr. Robert A. Black, Health Commissioner and Acting President of Board of Health of the City of Chicago,
Defendants-Appellants.

Appeal from the District Court of the United States for the Northern District of Illinois, Eastern Division.

And, to-wit: On the fourth day of August, 1941, there was filed in the office of the Clerk of this Court, the Opinion of the Court, which said Opinion is in the words and figures following, to-wit:

IN THE UNITED STATES CIRCUIT COURT OF APPEALS

For the Seventh Circuit.

No. 7502.

October Term, 1940, April Session, 1941.

FIELDCREST DAIRIES (Inc.),
Plaintiff-Appellee,

vs.

CITY OF CHICAGO (a Municipal Corporation), BOARD OF HEALTH OF THE CITY OF CHICAGO, DR. ROBERT A. BLACK, Health Commissioner and Acting President of Board of Health of the City of Chicago,

Defendants-Appellants.

Appeal from the District Court of the United States for the Northern District of Illinois, Eastern Division.

August 4, 1941.

Before SPARKS and MAJOR, *Circuit Judges*, and LINDLEY, *District Judge*.

MAJOR, *Circuit Judge*. This appeal is from a declaratory judgment decree in favor of plaintiff and awarding an injunction against defendants, entered October 23, 1940. The suit was commenced by a bill of complaint, filed February 2, 1939, which sought a judicial declaration that a milk ordinance of the City of Chicago, requiring milk to be delivered in "standard milk bottles" did not prohibit the sale of milk in plaintiff's paper containers, or that, if it does, the ordinance is invalid. An injunction was also sought restraining the defendants from interfering with the sale of milk in such containers. A hearing was had before a Master who recommended a denial of the relief sought. The court sustained objections to the Master's report and entered the decree in controversy.

Thus, the issues for decision are: (1) Does the ordinance forbid the delivery of milk in plaintiff's paper containers, and (2) if so, is the ordinance valid. Under the latter issue it is contended that any power which the City Council of the City of Chicago might have had to prohibit the sale of milk in such containers was withdrawn by an Act of the Illinois Legislature enacted in 1939, and, irrespective of this, that the ordinance was and is so unreasonable and arbitrary, both as a matter of law and fact, as to make it invalid.

The Master decided all issues in favor of the defendants, while the court concluded that plaintiff's container was a standard milk bottle within the meaning of the ordinance, and further concluded that any other construction of the ordinance would render it void.

Before discussing the merits of the issues presented, it is appropriate to state that the Master made a number of purported findings of fact which, in part at least, were not accepted by the court. The defendants contend that the court was obligated under Rule 53 (e) (2) of the Federal Rules of Civil Procedure to accept such findings "unless clearly erroneous." We think it is unnecessary to discuss to what extent, if any, this rule should be given application for the reasons: (1) The purported findings are in the nature of conclusions rather than findings of fact, and (2) for the more important reason that we have reached the conclusion that the cause should be disposed of on a legal rather than factual basis.

On January 4, 1935, there was enacted by the City Council of the City of Chicago, an ordinance regulating the production and distribution of milk in the city. Shortly thereafter there was promulgated by the Chicago Board of Health, regulations in conformity therewith. The provision of the ordinance now under attack is the third sentence of Section 3094:

"Any milk or milk products sold in quantities of less than one gallon shall be delivered in standard milk bottles; provided, however, that nothing herein contained shall be construed to prohibit hotels, soda fountains, restaurants, and similar establishments from dispensing milk or milk products from sanitary dispensers approved by the board of health."

Prior to the institution of suit, plaintiff repeatedly sought from the Chicago Board of Health a permit to

retail milk in the city which was denied on the ground that the container in which plaintiff proposed to deliver its milk was not a "standard milk bottle" within the meaning of the ordinance. Thus, the first issue in dispute revolves solely around the interpretation of those words as used in the ordinance. It is the contention of the plaintiff, sustained by the lower court, that such words should be construed to include its paper container, while the defendants contend that they should be construed to include glass bottles only.

Any detailed description of plaintiff's business, or the process employed in the manufacture of plaintiff's container appears irrelevant to a construction of the ordinance. At this point, therefore, we make only a brief reference to the same. Plaintiff, a wholly owned subsidiary of the Dean Milk Company, a Corporation, is engaged in the distribution of milk and milk products. Its plant is located at Chemung, McHenry County, Illinois, where it has two machines leased from the Ex-Cell-O Corporation, used for packaging milk in paper containers bearing the trade name "Pure-Pak." Its facilities are such that it is unable to use glass bottles. Its container is manufactured from paper obtained from a mill in West Virginia. The paper is cut, trimmed and printed at a manufacturing plant located in Ohio. The product is shipped to plaintiff's plant and assembled into the type of containers now in controversy. Such containers are commonly and, we think, generally referred to by Governmental officials and those interested in the trade as "Single Service Containers." This follows from the fact that they are destroyed after a single use. Thus they are distinguished from a multi-container, such as a glass bottle, which may be used many times. The court adopted the Master's description of plaintiff's container:

"Plaintiff's container is a prismatic box about 6½ inches high and 4½ inches wide, with a gable top, made of paper and paraffined on the inside and outside. In the middle of one of the slanting surfaces of the gable top is a so-called pouring lip which is about an inch square and which is pulled out like an ear when milk is to be poured out of the container."

The court, in construing the words "standard milk bottle" as including plaintiff's container, relied strongly upon two factors: (1) The situation existing in the trade at the

time of trial rather than at the time the ordinance was enacted, and (2) the definition of the word "bottle" as given by numerous Lexicographers. As to the first factor, the court said.

"* * * The ordinance is not static. The words are general and continuing in their operation. The ordinance must be construed in the light of new and changing conditions and current thought and practice. If, in the course of time, the advancement of science has produced a container which serves the same purpose as a glass container, and if the product delivered therein conforms to the requirements of sanitation prescribed by the health ordinances, then the ordinance must be given such construction as to permit the use of the later developed scientific container."

We are of the view that this was an unsound basis upon which to predicate a construction of the ordinance. As was said in *Sup v. Cervenka*, 331 Ill. 459, 462:

"* * * The courts have no legislative powers, and in the interpretation and construction of statutes their sole function is to determine, and within the constitutional limits of the legislative power to give effect to, the intention of the legislature. * * *"
and in *United States v. Goldenberg*, 168 U. S. 95, 102:

"The primary and general rule of statutory construction is that the intent of the lawmaker is to be found in the language that he has used. He is presumed to know the meaning of words and rules of grammar. The courts have no function of legislation, and simply seek to ascertain the will of the legislator.

* * * No mere omission, no mere failure to provide for contingencies, which it may seem wise to have specifically provided for, justify any judicial addition to the language of the statute. * * *"

In *United States v. First National Bank*, 234 U. S. 245, referring to facts subsequent to the enactment as bearing upon its construction, the court, on page 259, said:

"* * * But these after facts can have little weight in determining the meaning of the legislation and certainly cannot overcome the meaning of plain words used in legislative enactments. * * *"

That the language of a legislative enactment is to be construed in accordance with its meaning at the time used

rather than by a meaning afterwards acquired, was held in *People v. Barnett*, 319 Ill. 403. On page 408, the court said:

“ . . . The true rule is that statutes are to be construed as they were intended to be understood when they were passed. Statutes are to be read in the light of attendant conditions and that state of the law existent at the time of their enactment. The words of a statute must be taken in the sense in which they were understood at the time the statute was enacted.
• • •

“The legislative intent that controls in the construction of the statute has reference to the legislature which passed the given act. . . . In interpreting a statute the question is what the words used therein meant to those using them. • • •”

A municipal ordinance is to be tested in the same manner as a state statute. *Pacific States Company v. White*, 296 U. S. 176, 186; *The People v. Chicago Rys. Co.*, 270 Ill. 87, 105. Thus the theory of construction advanced by the plaintiff, apparently followed by the District Court, to the effect that the words “standard milk bottle” should be interpreted in accordance with the meaning of those words at the time of trial rather than their meaning at the time the ordinance was enacted, is not tenable. The recognition of such a theory would, in effect, impose legislative functions upon the courts. It would mean that a legislative enactment might mean one thing today and something else tomorrow. Changed conditions, of course, may make advisable a repeal or modification of existing legislation, but if so, the appeal should be to the legislature and not the courts.

We therefore must consider the language employed by the City Council in the enactment of the ordinance in the light of conditions as they existed at that time. The record discloses that the glass milk bottle, similar to those in general use at that time, was invented in 1884, and that for many decades milk in less than gallon quantities had been delivered in the City of Chicago in such bottles. Their general appearance, size and shape have been substantially the same for a half century. On the other hand, the use of paper containers was scarcely known when the ordinance was enacted. True, their development began about 1928, but they first came into general use in the East-

ern states about 1938. Since that time their use has rapidly increased in all parts of the country, including the area adjacent to the City of Chicago.

Plaintiff argues that under such circumstances it could not have been the intent of the City Council in 1935, to exclude the use of paper containers. It is possible and, we think, likely that this is correct. The question, however, is what it intended to permit rather than what it intended to exclude. To us it is readily apparent that what the City Council did mean and intend by use of the words "standard milk bottle" was the glass bottle at that time in universal use. The language employed in the ordinance itself lends support to this view. We have quoted heretofore that portion of the ordinance directly involved in this controversy and it is pertinent to point out that in other portions of the ordinance the word "containers" is employed. For instance, in referring to quarantine premises, the ordinance states: "No milk bottle or other containers may be taken out of or away" There was no occasion to use the words "other containers" if they were included in the words "milk bottles." The use of the words "milk bottle or other containers" is inconsistent with an intent that the latter was included in the former. The omission of the latter from the provision in controversy is therefore significant.

That a standard milk bottle has generally been recognized as not including a paper container or a single service container is well near conclusively demonstrated by the record. A number of witnesses who testified for the plaintiff recognized the distinction. In the same year the ordinance was passed, the United States Biennial Census of Manufacturers was taken, in which glass products were divided into three classifications, one of which was glass containers, and milk bottles were listed as one of the classes of glass containers. Under date of January 13, 1936, the Dean Milk Company (of which the plaintiff is the wholly-owned subsidiary) wrote the Board of Health that they would like to present the facts about "delivering milk to the City of Chicago in paper containers instead of bottles." Certainly there was no thought at that time that milk bottles included paper containers. The United States Public Health Service construed "standard milk bottle" to exclude paper containers. In June, 1939, its model ordinance was amended by adding "or in single service

containers" after "standard milk bottles." If the latter included the former, there was, of course, no occasion for the amendment. On August 2, 1938, the sales manager of the manufacturer of the machines used by the plaintiff for filling the containers, in a letter to the Board, referring to the ordinance, stated:

"True, its fundamental principles were written a good many years ago, and would not include the present, more sanitary milk receptacle—because it was then unknown."

The court, after quoting numerous lexicographers as to the definition of the word "bottle," stated:

"... While, in modern times, bottles have usually been made of glass, yet of the material out of which bottles have been made may be mentioned, besides glass and skins, hard stone, wood, ivory, bone, porcelain, glazed pottery and common earthenware. In fact, a bottle is not characterized by the material out of which it is made. . . ."

This reasoning, in our judgment, overlooks the fact that the language employed must be interpreted according to its usual and ordinary meaning. It could not be logically contended that the "standard milk bottle" referred to in the ordinance included a bottle made of skins, stone, wood, bone, or the numerous other articles out of which bottles, according to the lexicographers, have sometimes been made. We are not to search for that which possibly could have been included in the language employed, but must ascertain what was intended under the existing circumstances and conditions. Whatever meaning the word "bottle" might have had in ancient times, there can be no question in our mind but that in modern times it has generally been recognized as made of glass, and this has been the universal meaning as applied to a milk bottle.

The Master found the words "standard milk bottle" specified in the ordinance to be:

"A glass bottle of the type, shape and proportions well known to the trade and the community in Chicago as having been used for many years for the delivery of milk at retail."

It is our judgment that the Master's conclusion in this respect was correct. It follows that the use of plaintiff's paper containers for the delivery of milk in the City of Chicago was prohibited by the ordinance.

We now consider the attack made upon the validity of the ordinance. While we have construed the ordinance in the light of the situation existing at the time of its passage, a different test is permitted and, in fact, required in determining its validity at the time of trial. As was said in *Chastleton Corp. v. Sinclair*, 264 U. S. 543, 547:

"* * * A law depending upon the existence of an emergency or other certain state of facts to uphold it may cease to operate if the emergency ceases or the facts change even though valid when passed. *Perrin v. United States*, 232 U. S. 478, 486, 487. *Missouri v. Chicago, Burlington & Quincy R. R. Co.*, 241 U. S. 533, 539, 540. In *Newton v. Consolidated Gas Co.*, 258 U. S. 165, a statutory rate that had been sustained for earlier years in *Wilcox v. Consolidated Gas Co.*, 212 U. S. 19, was held confiscatory for 1918 and 1919."

This rule was recognized in *Perrin v. United States*, 232 U. S. 478, 487:

"* * * The fact that the conditions may become so changed in the future as to render the prohibition inoperative affords no reason for condemning it now. * * *"

Moreover, where the public policy of a state has been declared in the interim between the judgment of the lower court and appeal here, we are bound to give recognition to such policy. *Vandenbark v. Owens-Illinois Glass Co.*, 311 U. S. 538, 543. Under this view we need not consider or decide the validity of the ordinance at the time of its enactment. The question for consideration is whether the ordinance now contravenes the public policy of the State of Illinois, and whether so or not, was the situation at the time of the institution of suit so altered as to make the prohibition contained in the ordinance unreasonable and void. On these questions, as well as others, the Master found in favor of the defendants. In deciding to the contrary, the court, as already pointed out, placed its chief reliance upon a construction of the ordinance as including plaintiff's paper container. The court also held:

"Any other construction would render the ordinance void. Moreover, the Court is of opinion that under the recent statute of Illinois, heretofore referred to, the city is without power to prohibit the use of single service containers if such containers conform with the provisions of the statute."

The Illinois Legislature on July 24, 1939, during the pendency of this suit, enacted legislation (Illinois R. S. 1939, Ch. 56½, Foods, Pars. 115-134) which plaintiff contends established a policy for the state concerning the manufacture and distribution of pasteurized milk, including its distribution in single service containers. The Statute is lengthy and there seems no occasion to set it forth verbatim. It is sufficient to point out that it provides for the issuance of a Certificate of Approval to a pasteurization plant whose methods of operation comply with the numerous requirements of the Act. It also requires compliance "in accordance with minimum requirements adopted by the Director for interpretation and enforcement of this Act." (The Act defines "Director" as meaning the Director of the Department of Public Health.) Item 10 of Sec. 15 provides in part:

"* * * Single service containers, caps, gaskets and similar articles shall be manufactured and transported in a sanitary manner."

Item 18 of the same section provides:

"Bottling or packaging of milk and milk products shall be done at the place of pasteurization by approved mechanical equipment."

Pursuant to the power conferred by the Act, the Director of the Illinois Department of Public Health has promulgated "minimum requirements" for interpretation and enforcement of the Act. Among other things required are that single service containers shall be manufactured and handled in accordance with the requirements of the Department. The character of the buildings and rooms in which such containers are manufactured, packed, stored and handled, is prescribed. The average maximum bacterial count of the stock from which such containers are made is stated, and it is required that all operations in the fabrication plant, and during their transportation, shall be conducted so as to reduce to a minimum the possibility of contaminating such articles. It is required that all single service containers "shall be so treated as to be as impervious to milk and milk products as practicable."

There is no room for doubt but that the State, by this Act, as well as by the regulations promulgated pursuant thereto, has undertaken to regulate the pasteurization of milk, as well as its sale and distribution. It is equally

plain that the use of single service containers such as used by the plaintiff for the distribution of milk is permitted and approved upon compliance with the Act.

The authorities are uniform that any ordinance which conflicts with any statute or public policy adopted by the State Legislature is invalid. The rule is aptly stated in 2 McQuillin on Municipal Corporations, 572:

"A Municipal corporation cannot, without special authority, prohibit what the policy of a general statute permits. Nor, on the other hand, can an ordinance permit that which the State's policy forbids. Consequently under a general grant of power, a municipal corporation cannot adopt ordinances 'which infringe the spirit, or are repugnant to the policy, of the state as declared in its legislation.' It thus follows that if the state has expressed through legislation a public policy with reference to a subject, a municipality cannot ordain in respect to that subject to an effect contrary to, or in qualification of the public policy so established. . . ."

Such rule has been recognized by the Illinois courts. *City of Chicago v. Union Ice Cream Mfg. Co.*, 252 Ill. 311, 315; *City of Chicago v. Drogasawacz*, 256 Ill. 34, 37; *City of Marengo v. Rowland*, 263 Ill. 531, 534. In the Marengo case the court said:

" . . . Municipal authorities, under general grant of power, cannot adopt ordinances which infringe the spirit of a State law or are repugnant to the general policy of the State. . . ."

It is also well established that the General Assembly may resume at any time the power previously delegated to a municipality. *Wilkie v. City of Chicago*, 188 Ill. 444, 452.

Thus, we are confronted with a situation wherein the State on the one hand has expressly recognized and made provision for the use of a single service container for the sale and distribution of milk upon compliance with the requirements of the Act, and regulations lawfully promulgated in conformity therewith, and on the other hand, with the provision of the City Ordinance which prohibits such use. Plaintiff has complied with the State requirements and has been issued a Certificate of Approval. By this token it has been authorized by the state to sell and distribute its product within the confines of Illinois in single

service containers. The City of Chicago, however, by the prohibition contained in its ordinance, denies to plaintiff this right conferred by the State.

The defendants, however, in defense of this apparent repugnancy, rely upon Sec. 19 of the 1939 Act, which reads:

"Nothing in this act shall impair or abridge the power of any city, village or incorporated town to regulate the handling, processing, labeling, sale or distribution of pasteurized milk, and pasteurized milk products, provided such regulation (does) not permit any person to violate any of the provisions of this act."

The title of the 1939 Act is:

"An Act regulating the handling, processing, labeling, sale and distribution of pasteurized milk and pasteurized milk products."

Thus it will be noted that the language of the saving clause reserves to the city the right to regulate the same matters described in the title of the Act.

It is contended by the defendants that by this saving clause the city retains unimpaired the broad field of regulation which it theretofore had as recognized in *Koy v. City of Chicago*, 263 Ill. 122, and *City of Chicago v. Bowman Dairy Co.*, 234 Ill. 294. It is claimed that there is only one limitation in the saving clause and that is the proviso that the city shall "not permit any person to violate any of the provisions of this Act." Frankly, we are unable to conceive the purpose of these words. Certainly the city is without authority to permit the violation of the statute under discussion, or any other. The prohibition in this respect is meaningless. We think the words must be regarded as surplusage.

Furthermore, we are of the opinion that the purpose of the saving clause was not as broad as claimed by the defendants, notwithstanding that its language furnishes some support for such contention. The courts of Illinois have frequently recognized that power exercised by municipalities may be conferred or withdrawn by implication. *Village of Atwood v. Cincinnati*, *Indianapolis and W. R. Co.*, 316 Ill. 425; *Stowell v. Prentiss*, 323 Ill. 309, 319.

It therefore appears reasonable that the sole purpose of

the saving clause was to prevent a construction by implication, withdrawing the vast authority which the city had theretofore had over the milk industry. The ordinance of the City of Chicago and regulations of its Board of Health disclose scores of ways and means by which the industry is regulated, extending from the health of the cow producing the milk, to its delivery at the home of the consumer. The purpose of the saving clause, in our judgment, was to preserve in the city the unquestioned right to continue in a field which had been entered by the state, and in which, thereafter, each should have co-extensive power and authority. The defendants' contention, if sustained, would give the city a power broader than that provided by the Legislature for the state. It would make the state subservient to the city. It would impute to the Legislature the purpose of withdrawing the power theretofore exercised by the city and by the saving clause reconferring such power. We are unable to believe that such an incongruous result was intended. As was said in *Elsenau v. City of Chicago*, 334 Ill. 78, 81:

“ * * * A statute which grants powers to a municipal corporation is strictly construed, and any fair or reasonable doubt of the existence of an asserted power is resolved against the municipality which claims the right to exercise it. * * * ”

Neither do we agree with the defendants' argument that the prohibition of plaintiff's single service container is a mere regulation. It is true that all regulations are prohibitory in nature to those who are unable to comply therewith, and that the prohibition of plaintiff's container may be considered a regulation as it pertains to the sale and distribution of milk. However that may be, the state, upon entering the field not only made provision for the sale and distribution of pasteurized milk but recognized, permitted and approved the use of such containers, and the ordinance is squarely in conflict therewith. That the city, by virtue of the saving clause, has the power to regulate paper containers, we have no doubt, but we are unable to accept the theory that it has authority to outlaw that which the state has legalized. We therefore are of the opinion that the portion of the ordinance prohibiting plaintiff from distributing milk in single service containers is contrary to the public policy of the state, and void.

Having thus concluded, we find no occasion to discuss at length or decide other controverted questions as to the validity of the ordinance. We are not unmindful of the broad power possessed by a legislative body, of the strong presumption of legality attaching to their acts, and that it is not within the province of a court to substitute its judgment for theirs as announced in the many cases cited and relied upon by the defendants. Such authorities, however, have no application in view of what we have decided. Moreover, it appears that the presumption in favor of validity could be little more than a shadow in the instant matter for the reason that the use of single service containers was in its incipient stage when the ordinance was enacted, and the legislative body could not, from the nature of things, have considered and weighed their advantages and disadvantages.

It is true the record discloses some evidence in support of defendants' contention that the use of such containers presents a hazard to health. Such evidence, however, carries little, if any, conviction when considered in connection with the fact that the United States Public Health Service, whose model ordinance has been widely adopted by cities throughout the United States, including the City of Chicago, amended its ordinance in 1939, so as to include the regulation of single service containers, and that such amendment was subsequently proposed to the Council of the City of Chicago by its Board of Health; that the Legislature of the State of Illinois and its Department of Health have approved the use of such containers since 1939, and that their use has been authorized and permitted by more than 200 cities and villages in the United States, including such cities as Washington, D. C., New York and Philadelphia, as well as practically all of the cities and villages near and adjacent to the City of Chicago.

From what we have decided, it follows plaintiff was entitled to a declaratory judgment that the ordinance prohibiting the use of its Pure-Pak Single Service Container was void. It also follows that plaintiff was entitled to an injunction restraining the defendants from prohibiting, but not from regulating, the use of such containers. The cause is therefore reversed and remanded for the sole purpose of modifying the decree so as to conform with the views herein expressed.

LINDLEY, *District Judge*, Dissenting in part:

I regret that I am unable to agree that the ordinance violates the public policy of Illinois as expressed in Illinois Revised Statutes, 1939, Chap. 56½, Section 115-134.

Under *Koy v. City of Chicago*, 263 Ill. 122 the authority of Illinois cities to regulate the sale and distribution of milk includes power to declare the means by which purity, wholesomeness and freedom from disease shall be secured; to require milk containers to be of prescribed character and to protect the public generally in the sale and distribution of milk. This municipal authority, thus defined by the Supreme Court, is still lodged in the city unless there is something in the statute mentioned which has expressly or impliedly withdrawn it.

The statute does not direct the use of paper milk bottles. It inferentially recognizes that single service containers of some character will be employed but there is no provision that cities must permit them to be used. The whole effect of the enactment is that if "single-service" containers are used they shall conform to certain minimum requirements to be prescribed by the Illinois Department of Public Health. To my mind this legislation did not take from the city power to determine whether paper milk bottles were reasonably possibly dangerous to health and therefore should not be used. Indeed, the legislature apparently recognized the retained police power of the city in the provision that nothing in the act "shall impair or abridge the power of any city . . . to regulate the handling . . . and sale of pasteurized milk." This language, it seems to me, was not meaningless or surplusage, as announced in the majority opinion, but rather in the nature of a declaratory clause maintaining the existing status, inserted by the legislature in an abundance of caution, to assure municipalities that their power to act in the premises was not taken away, provided their ordinances should not in any way conflict with the provisions of the statute.

To my mind this is far afield from those cases where the legislature has entered the field and by its action taken over all the police power upon any specific subject such as confronted the court in *Northern Trust Company*, 318 Ill. 402 and *City of Chicago v. Jensen*, 331 Ill. 129. In case of such complete occupation of the range there is no area left in which the city may legitimately operate. Here the state

has apparently left to the city the right to determine whether paper milk bottles shall or shall not be used. The language of *City of Chicago v. Union Ice Cream Co.*, 252 Ill. 311 is pertinent.

The Master found upon substantial evidence a number of facts bearing upon the undesirability of use of paper milk bottles, showing clearly that at least the question of desirability of their use is debatable. In such case the city council is entitled to exercise its own administrative and legislative judgment,—a judgment not to be superseded by verdict of a jury or decision of a court. *Carolene Products Co. v. Evaporated Milk Assn.*, 93 F. (2d) 202 (CCA7); *United States v. Carolene Products Co.*, 304 U. S. 144; *U. S. v. Morgan*, _____ U. S. _____, 61 Sup. Ct. Rep. 999. See annotation 119 A. L. R. 243.

I think the ordinance should be sustained.

Endorsed: Filed August 4, 1941. Kenneth J. Carrick,
Clerk.

And on the same day, to-wit: On the fourth day of August, 1941, the following further proceedings were had and entered of record to-wit:

Before:

Hon. William M. Sparks, Circuit Judge.

Hon. J. Earl Major, Circuit Judge.

Hon. Walter C. Lindley, District Judge.

Monday, August 4, 1941.

Court met pursuant to adjournment.

Fieldcrest Dairies (Inc.),
Plaintiff-Appellee,

No. 7502

vs.

City of Chicago (a Municipal Corporation), Board of Health of the City of Chicago, Dr. Robert A. Black, Health Commissioner and Acting President of Board of Health of the City of Chicago,
Defendants-Appellants.

Appeal from the District Court of the United States for the Northern District of Illinois, Eastern Division.

This cause came on to be heard on the transcript of the record from the District Court of the United States for the Northern District of Illinois, Eastern Division, and was argued by counsel.

On Consideration Whereof: It is ordered, adjudged and decreed by this Court that the Decree of the said District Court in this cause appealed from be, and the same is hereby, reversed, and that this cause be, and it is hereby remanded to the said District Court for the sole purpose of modifying the decree so as to conform with the views expressed in the opinion of this Court filed in this cause.

It is further ordered that the costs of this appeal be taxed against the Appellants.

Order Staying Mandate.

And afterwards, to-wit: On the twenty-third day of August, 1941, the following further proceedings were had and entered of record, to-wit:

Saturday, August 23, 1941.

Court met pursuant to adjournment.

Before:

Hon. Otto Kerner, Circuit Judge.

Fieldcrest Dairies (Inc.), <i>Plaintiff-Appellee,</i> No. 7502 <i>vs.</i> City of Chicago, <i>et al.</i> , etc. <i>Defendants-Appellees.</i>	}	Appeal from the District Court of the United States for the Northern District of Illinois, East- ern Division.
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On motion of counsel for appellants, It is ordered that the Mandate in this cause be, and it is hereby stayed pursuant to Rule 25 of this Court.

And afterwards, to-wit: On the twenty-sixth day of August, 1941, there was filed in the office of the Clerk of this Court, a Designation of Record, which said Designation is in the words and figures following, to-wit:

IN THE UNITED STATES CIRCUIT COURT OF APPEALS

For the Seventh Circuit.

Fieldcrest Dairies, Inc., a corporation,
Plaintiff-Appellee,

vs.

City of Chicago, a municipal corporation, Board of Health of the City of Chicago, Dr. Robert A. Black, Health Commissioner and Acting President of the Board of Health of the City of Chicago,

Defendants-Appellants.

No. 7502.

DESIGNATION OF PORTIONS OF RECORD.

The Clerk of the Circuit Court of Appeals for the Seventh Circuit is hereby requested to prepare a transcript of the record for transmittal to the Supreme Court of the United States, the transcript to be made up to include the following documents filed in the Circuit Court of Appeals:

1. Printed record of proceedings in the District Court of the United States for the Northern District of Illinois, Eastern Division,³ filed January 20, 1941.

2. Judgment of the Circuit Court of Appeals entered August 4, 1941.

3. Opinion my Major, Circuit Judge, and the dissenting opinion of Lindley, District Judge, both filed August 4, 1941.

4. Order for stay of mandate entered August 23, 1941.

Barnet Hodes,

*Corporation Counsel of the City
of Chicago, Attorney for De-
fendants-Appellants.*

**Endorsed: Filed August 26, 1941. Kenneth J. Carrick,
Clerk.**

UNITED STATES CIRCUIT COURT OF APPEALS

For the Seventh Circuit.

I, Kenneth J. Carrick, Clerk of the United States Circuit Court of Appeals for the Seventh Circuit, do hereby certify that the foregoing printed pages contain a true copy of proceedings had and papers filed, made in accordance with the Designation of Record, in

Cause No. 7502.

Fieldcrest Dairies (Inc.),

Plaintiff-Appellee,

vs.

City of Chicago (a Municipal Corporation), Board of Health of the City of Chicago, Dr. Robert A. Black, Health Commissioner and Acting President of Board of Health of the City of Chicago,

Defendants-Appellants,

as the same remains upon the files and records of the United States Circuit Court of Appeals for the Seventh Circuit.

In Testimony Whereof I hereunto subscribe my name and affix the seal of said United States Circuit Court of Appeals for the Seventh Circuit, at the City of Chicago, this 5th day of September, A. D. 1941.

(Seal)

Kenneth J. Carrick,
*Clerk of the United States Circuit Court
of Appeals for the Seventh Circuit.*

SUPREME COURT OF THE UNITED STATES

ORDER ALLOWING CERTIORARI—Filed November 24, 1941

The petition herein for a writ of certiorari to the United States Circuit Court of Appeals for the Seventh Circuit is granted.

And it is further ordered that the duly certified copy of the transcript of the proceedings below which accompanied the petition shall be treated as though filed in response to such writ.